

Houghton Mifflin
Mathematics

Reteach Workbook

- Lesson Reteach Worksheets
- Prerequisite Skill Refresher Worksheets

4

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Houghton Mifflin
Mathematics

Reteach Masters

- Lesson Reteach Masters
- Prerequisite Skill Refresher Masters

4



HOUGHTON MIFFLIN

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Name _____

Date _____

Place Value Through Hundred Thousands

THOUSANDS			ONES		
hundred thousands	ten thousands	thousands	hundreds	tens	ones
4	5	6	8	9	1

There are different ways to write 456,891.

Different Ways to Write a Number

You can use standard form.	456,891
You can use expanded form.	$400,000 + 50,000 + 6,000 + 800 + 90 + 1$
You can use short word form.	456 thousand, 891
You can use word form.	four hundred fifty-six thousand, eight hundred ninety-one

Write each number in three other ways.

1. $200,000 + 30,000 + 20 + 1$

2. 905 thousand, 327

3. Three hundred fifty-four thousand

4. 5,090

Write each number in expanded form. Then write the value of the underlined digit.

5. 8,965

6. 593,281

Name _____

Date _____

Compare and Order Numbers

You can use place value to compare and order numbers.

Which number is greater: 345,090 or 345,900?

Step 1 To compare numbers, use place value and compare digits. Start by lining up the digits.

3 4 5, 0 9 0
3 4 5, 9 0 0

Step 2 Work from left to right. Find the place where the digits are different.

3 4 5, 0 9 0
3 4 5, 9 0 0
 ↑

Step 3 Compare the digits that are different. $9 > 0$.
< is less than
> is greater than

So, 345,900 is greater than 345,090.

Compare. Write < , > or = for each ○.

1. 378,900 ○ 387,900

2. 1,000 ○ 10,000

3. 45,990 ○ 45,899

4. 760,800 ○ 768,000

5. 20,000 ○ 20,001

6. 709,020 ○ 790,200

7. 328,004 ○ 230,804

8. 99,300 ○ 93,000

9. 113,000 ○ 103,100

10. 73,924 ○ 73,942

11. 103,211 ○ 103,211

12. 973,397 ○ 973,372

Write the numbers in order from least to greatest.

13. 6,072 6,720 6,270

14. 19,146 19,164 19,140

15. 21,090 20,999 22,000

16. 308,090 380,900 308,900

17. 790,870 709,807 907,780

18. 45,870 54,670 45,670

Name _____

Date _____

Rounding Numbers

Round 1,351 to the nearest 10, the nearest 100 and the nearest 1000.

When you round a number, circle the digit you want to round to. Look at the digit to the right of the circled digit. If this digit is less than 5, do not change the circled digit. If it is 5 or greater, increase the circled digit. Then change all the digits to the right of the circled digit to zeros.

Round to the nearest 10

To round to the nearest 10, look at the digit in the ones place.

1,351
↑

1 < 5, so 1,351 rounded to the nearest 10 is 1,350.

Round to the nearest 100

Look at the digit in the tens place.

1,351
↑

5 = 5, so 1,351 rounded to the nearest 100 is 1,400.

Round to the nearest 1,000

Look at the digit in the hundreds place.

1,351
↑

3 < 5, so 1,351 rounded to the nearest 1,000 is 1,000.

Round each number to the place of the underlined digit.

1. 32,567

2. 200,001

3. 79

4. 750

5. 45,000

6. 879

7. 902

8. 3,251

9. 287

10. 372,183

11. 236

12. 85

13. 310,555

14. 345

15. 550

16. 1,249

17. 125,051

18. 3,789

19. 983,217

20. 325

Name _____ Date _____

Problem-Solving Skill: Estimated or Exact Amounts

When you read numbers in a newspaper or magazine, you need to decide if the numbers are being used to show an estimate or an exact amount.

The Local News

Local Baseball Team Wins Championship!

The Mighty Mites have returned from a road trip of nearly 300 miles with the Championship title. The 14 team members and coaches won 6 games in a row and nearly all of their season games.

The team members will travel 565 miles next week for the all-star game and awards ceremony. The trip will take almost 12 hours, and will cost the team nearly \$400. The team is selling candy bars for \$1 each to help pay for the trip.

What is the cost of the Mighty Mites trip to the All-Star game?

Think: Is there a clue that tells you the number was rounded?

Nearly \$400.00.
Is this an estimate or an exact amount?

This is an estimate.

Use the newspaper article above to solve each problem.

1. How many miles was the Mighty Mites road trip for the Championship game? Is this an exact amount or an estimate?

Think: Is there a clue that tells you the number was rounded?

2. How much is each candy bar that the team is selling? Is this an exact amount or an estimate?

Think: Is there a clue that tells you the number was rounded?

3. How many team members and coaches are on the Mighty Mites team? Is this an exact number or an estimate?

Think: Is this an amount that was counted?

4. How long will the Mighty Mites' trip to the All-Star game and awards ceremony take? Is this an exact number or an estimate?

Think: Is there a clue that tells you the number was rounded?

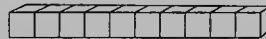
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Date _____

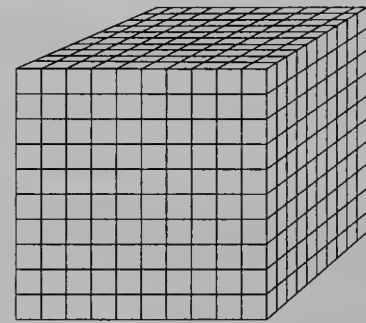
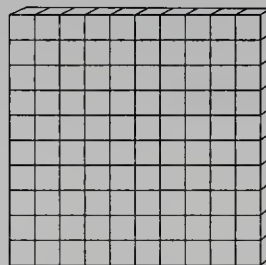
How Big Is 1 Million?

Think: How many ten thousands are in 1,000,000?

Ten of these = 100
 $10 \times 10 = 100$



Ten of these = 1,000
 $10 \times 100 = 1,000$



Ten of these = 10,000
 $10 \times 1,000 = 10,000$

One hundred of these = 100,000
 $100 \times 1,000 = 100,000$

How many thousands cubes = 1,000,000?
 One thousand thousands cubes = 1,000,000
 $1,000 \times 1,000 = 1,000,000$

Make tables to solve the following problems.

1. One hundred students at your school want to collect a total of 1,000,000 pennies for a school fundraiser. How many pennies does each student need to collect so they will have one million pennies, if each student collects an equal amount?
2. If 1,000 people march in a parade and throw candy to the audience, how many pieces of candy will each marcher need to throw to distribute 1,000,000 pieces? Each marcher throws an equal amount of candy.

Name _____ Date _____

Place Value Through Hundred Millions

Mars is about 142 million miles from the sun.

What digit of this number is in the 10 millions place?

Think: Make a place value chart to help see which digit is in each place.

The digit 4 is in the ten millions place of the number 142,000,000.

MILLIONS			THOUSANDS			ONES		
hundred millions	ten millions	millions	hundred thousands	ten thousands	thousands	hundreds	tens	ones
1	4	2	0	0	0	0	0	0
↑ The value of the 1 is 100,000,000.	↑ The value of the 4 is 40,000,000.	↑ The value of the 2 is 2,000,000.						

Different Ways to Write a Number

You can use standard form. 142,000,000

You can use expanded form. 100,000,000 + 40,000,000 + 2,000,000

You can use short word form. 142 million

You can use word form. one hundred forty-two million

Write the place of the 2 in each number. Then write its value.

1. 126,900,875 _____

2. 2,985,354 _____

3. 134,897,256 _____

4. 245,899 _____

Name _____

Date _____

Compare and Order Greater Numbers

You can use place value to compare and order numbers.

Order 7,011,572 and 9,918,369 and 7,926,045 from greatest to least .

Step 1 Line up the digits. Begin comparing at the greatest place value.

7,011,572
 9,918,369
 7,926,045
 ↑
 9 million > 7 million
 So 9,918,369 is the greatest number.

Step 2 Continue comparing. Then order the numbers.

7,011,572
 9,918,369
 7,926,045
 same — ↑ ↑
 9 > 0
 So 7,926,045 > 7,011,572

Compare. Write >, < or = for each ○.

1. 350,097,256 ○ 35,097,256

2. 109,900,900 ○ 111,111,111

3. 20,000,000 ○ 19,999,999

4. 305,123 ○ 53,321

5. 42,380,972 ○ 41,273,289

6. 12,937,251 ○ 12,937,251

Write the numbers in order from least to greatest.

7. 21,387,291 22,392,275 20,407,976

8. 2,309,001 2,309,000 2,009,001

9. 745,764,125 87,990,999 75,764,125

10. 9,899,900 21,899,900 100,000,000

Name _____

Date _____

Rounding Greater Numbers

Round 34,985,120 to the nearest million.

Step 1 Find the place you want to round to.

34,985,120
↑
millions place

Step 2 Look at the digit to its right.

34,985,120
↑
digit to the right

Step 3 Round.

34,985,120
↑
 $9 > 5$
Change 4 to 5.
Write zeros to the right.
34,985,120
rounds to 35,000,000

Round each number to the place of the underlined digit.

1. 28,236,100

2. 890,245,812

3. 720,458,156

4. 68,479,143

5. 755,795,345

6. 207,957,396

7. 296,498,694

8. 505,605,555

9. 238,792,010

10. 465,320,021

11. 89,125,072

12. 328,035,721

13. 739,501,272

14. 100,928,172


15. 1,273,592

16. 3,719,093

Name _____

Date _____

Problem-Solving Strategy: Use Logical Thinking



Remember:

- Understand
- Plan
- Solve
- Look Back

Sometimes you can use logical reasoning to solve a word problem.

Sara is shorter than Kenya, but taller than Josh. Who is taller, Kenya or Josh?

Use logical reasoning to complete a table.

So, Kenya is taller than Josh.

Write *yes* or *no* for the facts you know.

- Sara is not taller than Sara.
- Kenya is taller than Sara.
- Josh is not taller than Sara.

Name	Taller than Sara
Sara	no
Kenya	yes
Josh	no

Solve.

1. Erica, Mike, Sue and Jake ran a race. Mike finished before Erica and Erica finished after Jake. Sue came in fourth place. Give the place that each person finished the race.

Think:

What should the heads of each column and row in the table be?

2. Sanjit wrote down how far his friends and he rode their bikes. Carl rode 5 miles. The others rode 6 miles, 10 miles, and 7 miles. Ryan rode the farthest. Sanjit rode 2 miles more than Carl. How far did Michael ride?

Think:

Which numbers are two miles apart?

3. Bikes are parked at the playground. They are green, blue, silver and orange. The blue bike is before the silver bike. The green one comes after the silver one and the orange bike is before the blue bike. What is the order of the bikes?

Think:

What should the heads of each column and row in the table be?

4. George, Bill, Rachael, and Olivia each had flags. The colors of the flags are blue, red, green, and orange. Olivia had the flag that begins with the first letter of her name. George carried the flag that had three letters in the color. Bill's flag is not blue. What color flag did each person have?

Think:

Which color starts with an *O*?

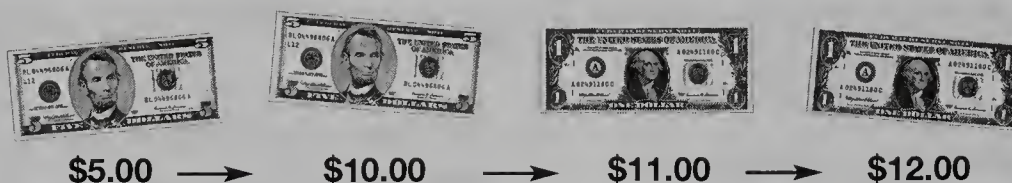
Name _____

Date _____

Compare Money Amounts

Ray wants to buy a book that costs \$12.97. She has two one-dollar bills, three quarters, three pennies, two five-dollar bills and two dimes. Does she have enough money to buy the book?

Find the total value of the bills by counting on.



Then find the value of the coins by counting on.



Add the value of the coins and the value of the bills.

$$\$12.00 + \$0.98 = \$12.98$$

Solution: Yes. Ray has \$12.98, 1 cent more than she needs.

Write each amount.

1.



2.



3. One five-dollar bill, two nickels

4. Three 20-dollar bills, three pennies

5. Two one-dollar bills, two half dollars, three dimes, four pennies

6. Three dollar bills, four dimes, one penny

Name _____ Date _____

Make Change

An item cost \$2.89. You pay for it with a five-dollar bill. What are the fewest bills and coins that you should receive in change?

Write down the cost of the item, and then count bills and coins until you reach the amount paid.

So your change is \$2.11; 2 one-dollar bills, 1 dime, 1 penny

\$2.89



\$2.90



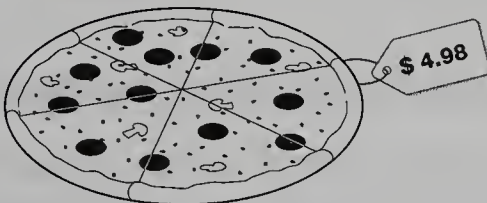
\$3.00

\$5.00



A \$10 bill was used to buy each item below.
List the coins and bills you would use to make change.

1.



3. cost of item: \$4.50

2.



4. cost of item: \$6.89

Write the name of the coins and the bills you would use to make change for each of the following.

5. You bought an item worth \$2.75. You paid with 1 five-dollar bill.

6. You bought an item worth 87¢. You paid with 4 quarters.

7. You bought an item worth \$1.40. You paid with 2 one-dollar bills.

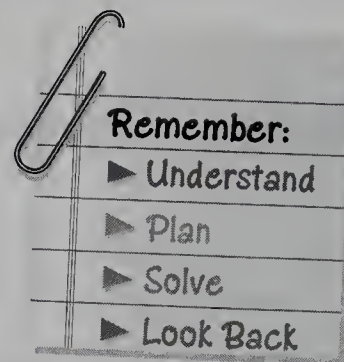
8. You bought an item worth \$6.85. You paid with 7 one-dollar bills.

Name _____

Date _____

Problem-Solving Application: Use Money

Sometimes you need to use money to solve word problems.



Problem Lars just bought a guitar. He has \$20.00 to buy strings and a tuner. If he buys medium strings and a digital tuner, how much change will he get?

Add the cost of the items.

	\$6.49
+	\$10.99
	<hr/> \$17.48

Guitar Supplies

Light Strings	\$5.49
Medium Strings	\$6.49
Heavy Strings	\$6.99
Pitch Pipe	\$3.99
Digital Tuner	\$10.99
Metronome	\$14.99

Then find change from \$20.00

The cost is \$17.48



\$17.48 → \$17.49 → \$17.50 → \$17.75 → \$18.00 → \$19.00 → \$20.00

"\$2.52 is the change."

- Keisha wanted to buy a set of heavy strings, a pitch pipe, and a digital tuner. She gave the clerk \$25.00. How much change should she receive?

Think: What do I need to do first?

- Sally bought a metronome and one other item. She received \$1.02 change from \$20.00. What other item did she buy?

Think: What do I need to do first?
What should I do next?

- How much change would Josh receive if he bought a metronome and a digital tuner and paid the clerk \$30.00?

Think: What do I need to do first?
What should I do next?

- Mark bought two different items. He paid with \$15.00 and received \$2.52 in change. What two items did he buy?

Think: What do I need to do first?
What should I do next?

Name _____

Date _____

Addition Properties

Zero Property

$$12 + 0 = 12$$

When you add zero to a number, the sum is that number.

Commutative Property

$$23 + 45 = 68$$

$$45 + 23 = 68$$

When you change the order of the addends the sum stays the same.

Associative Property

$$(6 + 7) + 15 = 28$$

$$6 + (7 + 15) = 28$$

When you change the way the addends are grouped, the sum stays the same.

Complete each number sentence. Tell which property of addition you used.

1. $23 + 84 = \underline{\hspace{2cm}} + 23$

2. $3 + (9 + 2) =$
 $(3 + \underline{\hspace{2cm}}) + 2$

3. $76 + 0 = \underline{\hspace{2cm}}$

4. $(44 + 79) + 35 =$
 $44 + (79 + \underline{\hspace{2cm}})$

5. $0 + 814 = \underline{\hspace{2cm}}$

6. $53 + 92 = 92 + \underline{\hspace{2cm}}$

7. $348 + \underline{\hspace{2cm}} = 348$

8. $5 + (16 + 19) =$
 $(5 + \underline{\hspace{2cm}}) + 19$

9. $74 + 18 = \underline{\hspace{2cm}} + 74$

Name _____

Date _____

Add Whole Numbers

 Add $248 + 87$.

Step 1 After the digits are lined up in the ones place, add the ones. Regroup ones as tens if necessary.

$$\begin{array}{r} 1 \\ 248 \\ + 87 \\ \hline 5 \end{array}$$

Step 2 Next, add tens, including any regrouped from ones. Regroup tens as hundreds if necessary.

$$\begin{array}{r} 11 \\ 248 \\ + 87 \\ \hline 35 \end{array}$$

Step 3 Next, add hundreds including any regrouped from tens.

$$\begin{array}{r} 11 \\ 248 \\ + 87 \\ \hline 335 \end{array}$$

Find each sum.

1. $\begin{array}{r} 754 \\ + 336 \\ \hline \end{array}$

2. $\begin{array}{r} 569 \\ + 288 \\ \hline \end{array}$

3. $\begin{array}{r} 737 \\ + 954 \\ \hline \end{array}$

4. $\begin{array}{r} 2,365 \\ + 998 \\ \hline \end{array}$

5. $\begin{array}{r} 3,763 \\ + 1,688 \\ \hline \end{array}$

6. $\begin{array}{r} 635 \\ + 458 \\ \hline \end{array}$

7. $\begin{array}{r} 2,085 \\ + 2,673 \\ \hline \end{array}$

8. $\begin{array}{r} 12,978 \\ + 7,567 \\ \hline \end{array}$

9. $\begin{array}{r} 33,575 \\ + 4,903 \\ \hline \end{array}$

10. $\begin{array}{r} 63,528 \\ + 873 \\ \hline \end{array}$

11. $532 + 328$

12. $1,268 + 4,193$

13. $32,358 + 52,476$

14. $1,287 + 395$

15. $639 + 285$

16. $7,418 + 5,236$

17. $382 + 989$

18. $12,385 + 9,389$

19. $387 + 529$

Name _____

Date _____

Subtract Whole Numbers

Find $3,126 - 479$.

Step 1 Subtract ones. Regroup a ten as ten ones.

$$\begin{array}{r} 31\overset{11}{\cancel{2}}6 \\ - 479 \\ \hline 7 \end{array}$$

Step 2 Subtract tens. Regroup a hundred as ten tens.

$$\begin{array}{r} 3\overset{10}{\cancel{1}}\overset{11}{\cancel{2}}6 \\ - 479 \\ \hline 47 \end{array}$$

Step 3 Next, subtract hundreds. Regroup a thousand as ten hundreds.

$$\begin{array}{r} 3\overset{1}{\cancel{1}}\overset{10}{\cancel{1}}\overset{11}{\cancel{2}}6 \\ - 479 \\ \hline 647 \end{array}$$

Step 4 Subtract thousands.

$$\begin{array}{r} 3\overset{2}{\cancel{1}}\overset{10}{\cancel{1}}\overset{11}{\cancel{2}}6 \\ - 479 \\ \hline 2,647 \end{array}$$

$$3,126 - 479 = 2,647$$

Subtract.

1.
$$\begin{array}{r} 592 \\ - 137 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 846 \\ - 319 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 4,993 \\ - 564 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 7,133 \\ - 5,636 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 9,826 \\ - 7,737 \\ \hline \end{array}$$

6. $796 - 625$

7. $385 - 128$

8. $3,542 - 727$

9. $45,698 - 26,314$

10. $57,129 - 42,632$

11. $96,128 - 63,549$

12. $372 - 189$

13. $13,871 - 4,923$

14. $32,387 - 12,929$

15. $3,187 - 2,298$

16. $395 - 299$

17. $17,321 - 16,432$

Name _____ Date _____

Estimate Sums and Differences

Estimate the sum of 477 and 592.

Round each addend to the nearest hundred.
Then add the rounded numbers.

$$\begin{array}{r} 477 \rightarrow 500 \\ + 592 \rightarrow 600 \\ \hline 1,100 \end{array}$$

Round each addend to the nearest ten.
Then add the rounded numbers.

$$\begin{array}{r} 477 \rightarrow 480 \\ + 592 \rightarrow 590 \\ \hline 1,070 \end{array}$$

Round each number to the nearest ten. Then estimate.

1. $77 + 28$

2. $66 - 31$

3. $196 + 47$

4. $4,042 - 683$

Round each number to the nearest hundred. Then estimate.

5. $429 + 518$

6. $703 - 492$

7. $1,443 + 2,689$

8. $4,872 + 6,228$

9. $815 - 602$

10. $545 + 106$

11. $6,013 - 654$

12. $7,842 - 2,928$

13. $273 + 322$

14. $448 - 252$

15. $1,399 - 404$

16. $798 + 136$

17. $6,208 - 2,796$

18. $879 + 321$

19. $4,901 - 3,209$

20. $2,385 + 2,957$

Name _____

Date _____

Problem-Solving Skill: Estimated or Exact Answers

Before you solve a problem, you must decide whether you need an estimate or an exact answer.

Use the table to solve. *About* how many students liked the Transparent Talking Woman best?

Round to the nearest ten.

$$\begin{array}{r} 53 \text{ boys} \rightarrow 50 \\ 68 \text{ girls} \rightarrow +70 \\ \hline 120 \end{array}$$

The question asks *about* how many, so you can estimate.

How many more girls than boys liked the Foucault Pendulum best?

$$\begin{array}{r} \text{girls} \rightarrow 141 \\ \text{boys} \rightarrow -102 \\ \hline 39 \end{array}$$

The question asks how many more, so you need to find the exact difference.

Solve. Use the table. Decide whether you need an estimate or an exact answer. Then solve.

The Science Museum asked all the visitors to vote on their favorite exhibit. The first day's results are given in the table.

Exhibit	Boys	Girls
Transparent Talking Woman	53	68
Time Tunnel	88	76
Foucault Pendulum	102	141
Space Capsule	98	96

1. About how many boys liked either the Time Tunnel or the Foucault Pendulum exhibits best?

Think:

Can an estimate solve this problem?

2. How many more girls than boys voted for the Transparent Talking Woman as the favorite exhibit?

Think:

Is the question asking for an exact number?

3. How many more boys than girls liked the Time Tunnel best?

Think:

Is the question asking for an exact number?

4. About how many students voted for the space capsule as the favorite exhibit?

Think:

Can an estimate solve this problem?

Name _____

Date _____

Subtract Across Zeros

Find $500 - 216$.

Step 1 $6 > 0$, you need to regroup. There are no tens. So regroup 1 hundred as 10 tens.

$$\begin{array}{r} 4 \text{ } 10 \\ \cancel{5} \cancel{0} 0 \\ - 216 \\ \hline \end{array}$$

Step 2 Regroup 1 ten as ten ones.

$$\begin{array}{r} 4 \text{ } 9 \text{ } 10 \\ \cancel{5} \cancel{0} \cancel{0} \\ - 216 \\ \hline \end{array}$$

Step 3 Then subtract: first ones, then tens, and then hundreds.

$$\begin{array}{r} 4 \text{ } 9 \text{ } 10 \\ \cancel{5} \cancel{0} \cancel{0} \\ - 216 \\ \hline 284 \end{array}$$

Subtract. Estimate to check.

1. $\begin{array}{r} 605 \\ - 337 \\ \hline \end{array}$

2. $\begin{array}{r} 702 \\ - 397 \\ \hline \end{array}$

3. $\begin{array}{r} 400 \\ - 143 \\ \hline \end{array}$

4. $\begin{array}{r} 506 \\ - 188 \\ \hline \end{array}$

5. $\begin{array}{r} 2,209 \\ - 785 \\ \hline \end{array}$

6. $\begin{array}{r} 4,607 \\ - 1,248 \\ \hline \end{array}$

7. $\begin{array}{r} 7,007 \\ - 5,912 \\ \hline \end{array}$

8. $\begin{array}{r} 32,090 \\ - 22,693 \\ \hline \end{array}$

9. $\begin{array}{r} 91,000 \\ - 73,662 \\ \hline \end{array}$

10. $\begin{array}{r} 80,500 \\ - 36,294 \\ \hline \end{array}$

11. $800 - 170$

12. $15,500 - 6,709$

13. $20,005 - 6,999$

14. $3,090 - 2,131$

15. $803 - 299$

16. $9,033 - 285$

17. $6,002 - 4,983$

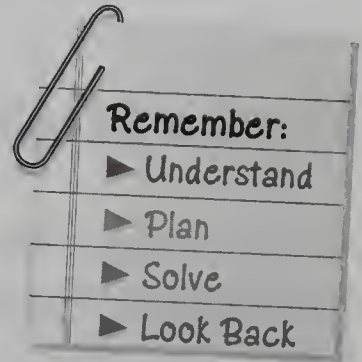
18. $63,003 - 59,219$

19. $8,301 - 2,932$

Name _____

Date _____

Problem-Solving Application: Use Operations



Before you solve a problem, you need to decide which operation to use.

Problem

In the year 1620 the Colonial population in this country was 2,286. By 1630 the Colonial population was 4,600. By how much had the population increased?

Remember

Add to find out how many there are altogether. Subtract to find a part of the total or to compare amounts.

Since I want to know how much greater the population was in 1630, I need to subtract.

Find $4,600 - 2,286$.

$$\begin{array}{r} 4,600 \\ -2,286 \\ \hline \end{array}$$

$$\begin{array}{r} 5 \quad 10 \quad 10 \\ 4, \cancel{0} \quad \cancel{0} \quad \cancel{0} \\ - 2, 2 \quad 8 \quad 6 \\ \hline 2, 3 \quad 1 \quad 4 \end{array}$$

The population had increased by 2,314.

Solve. Use addition or subtraction to solve each problem.

1. The Census Bureau sent out 6,824 questionnaires in one Ohio district. During the first week of April, 512 questionnaires were returned. How many were there still to come in?

Think:

Do I need to find the total amount or a part of the total amount?

2. In the second week of April, a total of 1,845 Census forms were returned. In the third week of April a total of 2,469 forms were returned. How many forms came in during the second and third week of April?

Think:

Do I need to find the total amount, or am I finding part of the total amount?

3. During the fourth week of April, 937 forms were returned. How many more forms were returned in the third week than in the fourth week?

4. By the end of the first week of May, 5,992 census forms had been returned in Mr. Heslop's district. How many were there still to come in?

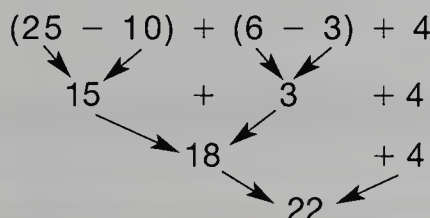
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Expressions and Equations

An expression may be just another number or a combination of numbers and operation symbols.

Simplify the expression
 $(25 - 10) + (6 - 3) + 4$.

- First, do the operations inside the parentheses.
- Then do the rest of the operations.



Sometimes simplifying two expressions can give different results.

When you simplify $(4 + 12) + 20$, the result is **36**.
 When you simplify $(8 + 2) - (2 + 3)$, the result is **5**.
 You can write the two expressions with a symbol.

$$(4 + 12) + 20 \neq (8 + 2) - (2 + 3)$$

$$(4 + 12) + 20 > (8 + 2) - (2 + 3)$$

$$(8 + 2) - (2 + 3) < (4 + 12) + 20$$

Simplify each expression.

- | | | |
|------------------------------------|------------------------------|-------------------------------------|
| 1. $(18 + 22) - (3 + 8)$
_____ | 2. $(48 - 34) + 12$
_____ | 3. $(17 - 15) + (20 - 16)$
_____ |
| 4. $(9 + 23) - (20 - 11)$
_____ | 5. $(68 - 45) + 32$
_____ | 6. $50 - (25 + 16)$
_____ |
| 7. $(35 + 17) - 7$
_____ | 8. $(49 - 12) + 3$
_____ | 9. $(26 + 10) + (24 - 10)$
_____ |

Complete using $>$, $<$, or $=$ for each \bigcirc .

- | | |
|---|--|
| 10. $9 + (85 - 27) \bigcirc (47 - 27) + 47$ | 11. $(65 - 16) + 4 \bigcirc 75 - (39 - 26)$ |
| 12. $28 + (18 - 12) \bigcirc 35 - (12 - 7)$ | 13. $(35 + 25) - 10 \bigcirc (96 - 26) - 20$ |

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Write and Evaluate Algebraic Expressions

Evaluate $9 + x$ when $x = 12$.

Step 1 Record the expression.

$$9 + x$$

Step 2 Replace x with 12.

$$\begin{array}{l} 9 + x \\ 9 + 12 \end{array}$$

Step 3 Simplify the expression.

$$\begin{array}{l} 9 + x \\ 9 + 12 \\ 21 \end{array}$$

Name the variable in each algebraic expression.

1. $b + 3$

2. $r - 7$

3. $8 + n$

4. $7 + m$

Evaluate each expression when $n = 5$.

5. $n + 8$

6. $n - 3$

7. $12 + n$

8. $n + 25$

9. $n - 2$

10. $33 - n$

11. $n + n + 7$

12. $n + n + 1$

Evaluate each expression when $P = 12$.

13. $17 + P$

14. $P - 9$

15. $P + 5$

16. $P - 12$

17. $P + P + 7$

18. $P + 2$

19. $P + P + 12$

20. $23 + P + 20$

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Write and Solve Equations

Barbara bought a magazine and received \$6 in change. If Barbara paid with a 10-dollar bill, how much did the magazine cost? Write an equation and solve the problem.

Think:

Let m stand for the cost of the magazine in dollars. Then the expression $6 + m$ stands for the money Barbara gave for the magazine.

Barbara paid with a 10-dollar bill. Write an equation.

$$6 + m = 10$$

Solve the equation.

$$6 + m = 10; m = 4$$

Write:

$$6 + m = 10$$

$$m = 4$$

The magazine costs \$4.

Match each equation with its solution.

1. $22 + n = 32$

2. $n - 12 = 25$

3. $n + n = 18$

4. $9 + n + 5 = 30$

5. $n - 35 = 35$

6. $12 = n + 5$

7. $18 + 19 = n + 20$ 8. $30 - 12 = n - 15$

9. $n + n = 12 + 16$ 10. $n + 40 = 36 + 8$ 11. $36 - n = 17 + 11$ 12. $n + (n + 33) = 45$

Solutions:

a. $n = 10$

b. $n = 9$

c. $n = 7$

d. $n = 33$

e. $n = 16$

f. $n = 37$

g. $n = 70$

h. $n = 17$

i. $n = 6$

j. $n = 4$

k. $n = 8$

l. $n = 14$

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Solving Addition Equations

When you add the same number to both sides of an equation, the sides are still equal. The same is true if you subtract the same number from both sides of an equation.

Step 1 Begin with this equation.

Step 2 Add 5 to each side of the equation.

Step 3 Write the new equation. Then solve this new equation.

Is the solution the same as for the original equation?

$$x + 5 = 9$$

$$x = 4$$

$$x + 5 + 5 = 9 + 5$$

$$x + 10 = 14$$

$$x = 4$$

yes

Solve the equation $s + 7 = 11$. Copy and complete the table below.

Start with $s + 7 = 11$.

	Add this number to each side.	Write the new equation.	Solve the new equation.	Is the solution the same for $s + 7 = 11$?
1.	2			
2.	6			
3.	7			
	Now subtract this number from each side of the same equation.			
4.	3			
5.	5			
6.	7			

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Equations with Two Variables

Meg is 12 years younger than Lori. You can use two algebraic expressions to write a two-variable equation for Meg's age.

Let m stand for Meg's age in years. Then $m + 12$ is an expression for Lori's age in years.

Let l stand for Lori's age in years. Then l is an expression for Lori's age in years.

$$m + 12 = l$$

If Meg is 9 years old, then Lori is 21 years old.

You can make a function table with pairs of values that make the equation true.

m	l
15	27
5	17
10	22
20	32

Figure out the values of the variables and complete each function table.

1. $y = x + 2$

x	y
3	
4	

2. $p = h - 3$

h	p
	4
	6

3. $b = a + 7$

a	b
	12
13	

4. $d = 13 + c$

c	d
12	
	20

5. $n = m + 17$

m	n
15	
22	

6. $y = x + 10$

x	y
12	
	27

7. $t = s - 6$

s	t
16	
	3

8. $p = o - 11$

o	p
	5
21	

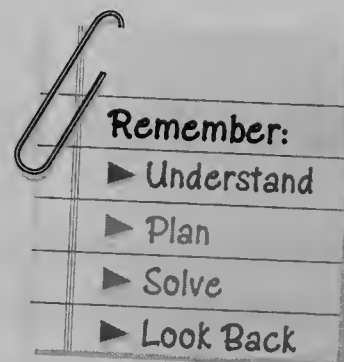
9. $f = e - 2$

e	f
8	
	12

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Problem-Solving Strategy: Guess and Check



	Kara's age	Bonnie's age	Is the difference 4?	Is the total 28?
1 st guess	8	12	$12 - 8 = 4$; yes	$12 + 8 = 20$ too small
2 nd guess	16	20	$20 - 16 = 4$; yes	$20 + 16 = 20$ too large
3 rd guess	12	16	$16 - 12 = 4$; yes	$12 + 16 = 28$ YES

When your guess is too small, try larger numbers. When your guess is too large, try smaller numbers. Do this until you come to the correct numbers, as in the table above.

Use the Guess and Check Strategy to solve each problem.

1. Bonnie's dad is 5 years older than her mom. Together their ages add up to 85. How old are Bonnie's parents?

Think: What is the sum of their ages?

2. Kara's brothers, Carl and Juan, are 4 years apart. Carl is the older of the two. Their ages add up to 18. How old is each boy?

Think: What is the sum of their ages?

3. Bonnie's Aunt Julie is 7 years younger than Uncle Edward. Their ages add up to 71. How old are Aunt Julie and Uncle Edward?

Think: What is the sum of their ages?

4. Carl is 8 inches taller than Julio. Their heights add up to 96 inches. How tall is each boy?

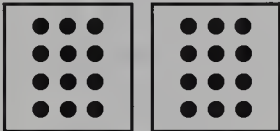
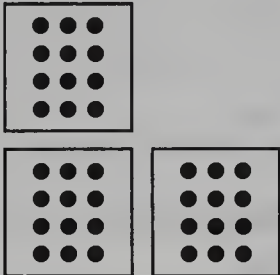
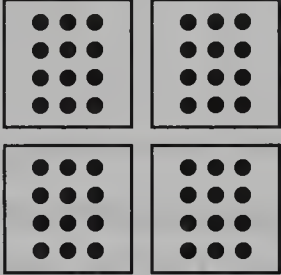
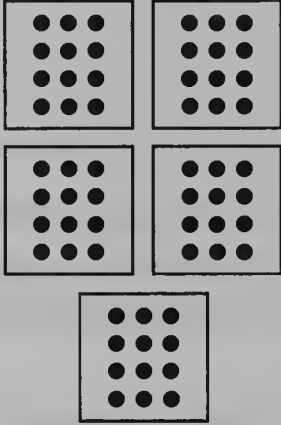
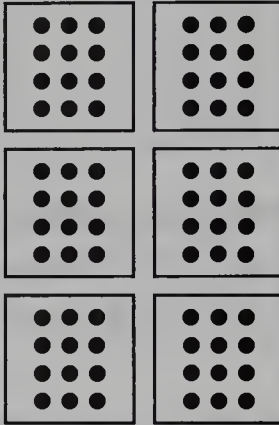
Think: What is the sum of their heights?

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Use Doubles to Multiply

You can use doubles to help you multiply by 2, 3, 4, 6, or 8.
Each box holds 12 pens.

<p>How many pens are in 2 boxes?</p>  <p>$2 \times 12 = 24$</p>	<p>How many pens are in 3 boxes?</p>  <p>$3 \times 12 = 36$</p>	<p>How many pens are in 4 boxes?</p>  <p>$4 \times 12 = 48$</p>	<p>How many pens are in 5 boxes?</p>  <p>$5 \times 12 = 60$</p>	<p>How many pens are in 6 boxes?</p>  <p>$6 \times 12 = 72$</p>
---	--	---	--	--

Find the first product. Then use the first product to help you find the second product.

- | | | | |
|------------------------|------------------------|------------------------|------------------------|
| 1. 2×5 _____ | 2. 2×2 _____ | 3. 4×7 _____ | 4. 2×3 _____ |
| 4×5 _____ | 4×2 _____ | 8×7 _____ | 4×3 _____ |
| 5. 1×4 _____ | 6. 2×6 _____ | 7. 3×5 _____ | 8. 4×2 _____ |
| 2×4 _____ | 4×6 _____ | 6×5 _____ | 8×2 _____ |
| 9. 2×9 _____ | 10. 3×4 _____ | 11. 4×1 _____ | 12. 2×7 _____ |
| 4×9 _____ | 6×4 _____ | 8×1 _____ | 4×7 _____ |
| 13. 3×7 _____ | 14. 4×5 _____ | 15. 1×6 _____ | 16. 4×3 _____ |
| 6×7 _____ | 8×5 _____ | 2×6 _____ | 8×3 _____ |
| 17. 4×6 _____ | 18. 1×3 _____ | 19. 3×3 _____ | 20. 2×4 _____ |
| 8×6 _____ | 2×3 _____ | 6×3 _____ | 4×4 _____ |

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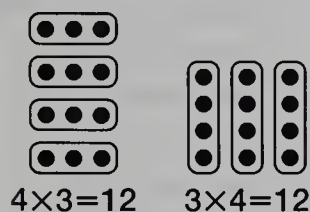
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Multiplication Properties

You can use the Properties of Multiplication to help you find products.

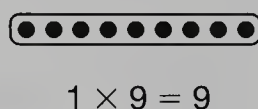
Commutative Property

When you change the order of the facts, the product stays the same.



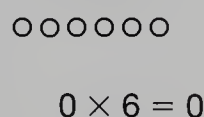
Property of One

When you multiply any number by 1, the product is the other factor.



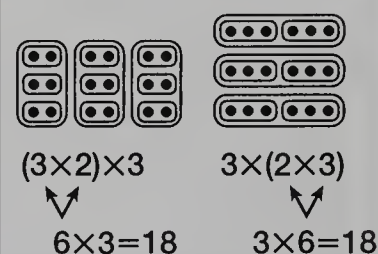
Zero Property

When you multiply any number by 0, the product is 0.



Associative Property

When you group factors in different ways, the product stays the same.



Use the Properties of Multiplication to help you find the products.

1. 7×0 _____

2. 6×1 _____

3. 100×0 _____

4. 5×1 _____

5. 1×22 _____

6. $(3 \times 3) \times 3$ _____

7. $(8 \times 1) \times 1$ _____

8. 200×1 _____

9. 30×0 _____

10. $5 \times (0 \times 6)$ _____

11. $3 \times (4 \times 3)$ _____

12. 77×1 _____

13. 768×1 _____

14. 12×0 _____

15. $(9 \times 3) \times 2$ _____

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Use Patterns to Multiply

You can use patterns to multiply by 5, 9, and 10.

Multiply by 5

Count by 5.

5, 10, 15, 20, 25, 30, 35, 40

Look for patterns.

Pattern 1: the ones digits go

5, 0, 5, 0

Pattern 2: tens digits have
a pattern, too:

0, 1, 1, 2, 2, 3, 3, 4, 4, 5

Multiply by 10

Count by 10.

10, 20, 30, 40, 50, 60, 70

Look for patterns.

Pattern 1: the ones digits are
always zero

Pattern 2: the tens digit is
always the same
as the multiplier.

Multiply by 9

Count by 9.

9, 18, 27, 36, 45, 54, 63, 72

Look for patterns.

Pattern 1: the sum of the digits
in the products
always equal to 9.

Pattern 2: the tens digits are
always one less
than the multiplier's
number.

Find each product.

1. 5×8 _____

2. 9×1 _____

3. 9×7 _____

4. 10×6 _____

5. 5×6 _____

6. 10×5 _____

7. 9×8 _____

8. 9×10 _____

9. 9×5 _____

10. 10×3 _____

11. 7×5 _____

12. 10×1 _____

13. 7×9 _____

14. 9×4 _____

15. 4×10 _____

16. 5×11 _____

17. 9×9 _____

18. 9×0 _____

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Relate Multiplication and Division

Multiplication facts can help you to divide.

You can arrange 18 counters in an array. The array has 6 columns and 3 counters in each column.



You can write multiplication equations about the array.

$$\begin{array}{ccccccc} 6 & \times & 3 & = & 18 \\ \uparrow & & \uparrow & & \uparrow \\ \text{columns} & & \text{counters} & & \text{counters} \\ & & \text{in each column} & & \text{in all} \end{array}$$

$$\begin{array}{ccccccc} 6 & \times & 3 & = & 18 \\ \uparrow & & \uparrow & & \uparrow \\ \text{rows} & & \text{counters} & & \text{counters} \\ & & \text{in each row} & & \text{in all} \end{array}$$

You can also write division equations about the array.

$$\begin{array}{ccccccc} 18 & \div & 6 & = & 3 \\ \uparrow & & \uparrow & & \uparrow \\ \text{counters} & & \text{columns} & & \text{counters in} \\ \text{in all} & & & & \text{each column} \end{array}$$

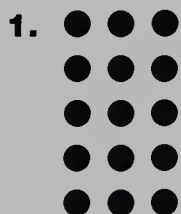
$$\begin{array}{ccccccc} 18 & \div & 3 & = & 6 \\ \uparrow & & \uparrow & & \uparrow \\ \text{counters} & & \text{rows} & & \text{counters in} \\ \text{in all} & & & & \text{each row} \end{array}$$

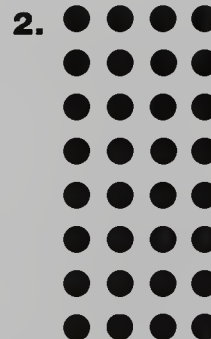
The multiplication and division equations that can be written using the numbers 3, 6, and 18 form a **fact family**.

$$6 \times 3 = 18 \quad 18 \div 6 = 3$$

$$3 \times 6 = 18 \quad 18 \div 3 = 6$$

Write the fact family for each array of numbers.









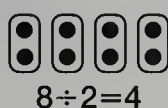
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Use Doubles to Divide

You can use doubles to help you divide.

The music store is shipping 8 CDs. The clerk puts 2 CDs in each box. How many boxes does the clerk use?

Divide. $8 \div 4 = n$



Solution: He used 4 boxes

Suppose the clerk doubles the number of CDs he puts into each box. How many boxes will he use now?

Divide. $8 \div 4 = n$

Think: 4 is the double of 2. So the quotient will be half of $8 \div 2$. $8 \div 2 = 4$

Solution: He will use 2 boxes.

Find each quotient.

- | | | | |
|----------------------|-----------------------|-----------------------|-----------------------|
| 1. $48 \div 3$ _____ | 2. $30 \div 3$ _____ | 3. $12 \div 2$ _____ | 4. $36 \div 6$ _____ |
| $48 \div 6$ _____ | $30 \div 6$ _____ | $12 \div 4$ _____ | $36 \div 12$ _____ |
| 5. $20 \div 5$ _____ | 6. $32 \div 4$ _____ | 7. $32 \div 2$ _____ | 8. $24 \div 12$ _____ |
| $20 \div 10$ _____ | $32 \div 8$ _____ | $32 \div 4$ _____ | $24 \div 24$ _____ |
| 9. $18 \div 9$ _____ | 10. $50 \div 5$ _____ | 11. $16 \div 4$ _____ | 12. $42 \div 3$ _____ |
| $18 \div 18$ _____ | $50 \div 10$ _____ | $16 \div 8$ _____ | $42 \div 6$ _____ |

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Division Rules

Here are some rules that can help you solve division problems with 1 or 0.

- When you divide a number by itself, the quotient is 1. This is true for all numbers except 0.

$$\begin{array}{|c|c|c|c|} \hline \bullet & \bullet & \bullet & \bullet \\ \hline \end{array}$$

$$4 \div 4 = 1$$

or

$$4 \overline{) 4} \begin{array}{r} 1 \\ \end{array}$$

- When you divide a number by 1, the quotient is the same as the dividend.

$$\begin{array}{|c|c|c|c|} \hline \bullet & \bullet & \bullet & \bullet \\ \hline \end{array}$$

$$4 \div 1 = 4$$

or

$$1 \overline{) 4} \begin{array}{r} 4 \\ \end{array}$$

- When you divide 0 by a number, except 0, the quotient is 0.

$$\begin{array}{|c|c|c|c|} \hline \square & \square & \square & \square \\ \hline \end{array}$$

$$0 \div 4 = 0$$

or

$$4 \overline{) 0} \begin{array}{r} 0 \\ \end{array}$$

- You cannot divide a number by 0.

~~$$4 \div 0$$~~

or

~~$$0 \overline{) 4}$$~~

Use the division rules to help you solve each equation.

1. $6 \div 6 = n$

2. $3 \div 1 = n$

3. $0 \div 8 = n$

4. $3 \div 1 = n$

5. $4 \div n = 4$

6. $5 \div 5 = n$

7. $n \div 6 = 0$

8. $9 \div 1 = n$

9. $7 \div n = 7$

10. $0 \div 4 = n$

11. $n \div 1 = 7$

12. $n \div 3 = 0$

13. $2 \div 1 = n$

14. $n \div 1 = 8$

15. $9 \div n = 9$

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Divide by 5, 7, 9, or 10

You can use related multiplication facts to help you divide by 5, 7, 9, and 10.

Divide by 5.

$$45 \div 5 = n$$

*Think of a related
multiplication fact.*

$$5 \times 9 = 45$$

$$\text{So } 45 \div 5 = 9$$

Divide by 7.

$$42 \div 7 = n$$

*Think of a related
multiplication fact.*

$$7 \times 6 = 42$$

$$\text{So } 42 \div 7 = 6$$

Divide by 9.

$$45 \div 9 = n$$

*Think of a related
multiplication fact.*

$$9 \times 5 = 45$$

$$\text{So } 45 \div 9 = 5$$

Divide by 10.

$$100 \div 10 = n$$

*Think of a related
multiplication fact.*

$$10 \times 10 = 100$$

$$\text{So } 100 \div 10 = 10$$

Find each quotient.

1. $25 \div 5$

2. $18 \div 9$

3. $14 \div 7$

4. $56 \div 7$

5. $9 \overline{)45}$

6. $10 \overline{)90}$

7. $5 \overline{)35}$

8. $7 \overline{)63}$

9. $56 \div 7$

10. $36 \div 9$

11. $21 \div 7$

12. $81 \div 9$

13. $9 \overline{)27}$

14. $9 \overline{)54}$

15. $5 \overline{)55}$

16. $9 \overline{)72}$

17. $70 \div 10$

18. $21 \div 7$

19. $15 \div 5$

20. $70 \div 7$

21. $5 \overline{)40}$

22. $10 \overline{)100}$

23. $10 \overline{)30}$

24. $5 \overline{)5}$

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Division With Remainders

You can divide when there are remainders.

Find $13 \div 4$.

Step 1 Think of multiplication facts that have products close to 13.

$4 \times 3 = 12$
 $4 \times 4 = 16$
 16 is too many.
 Try 3 as the quotient.

Step 2 Find the quotient.

$$\begin{array}{r} 3 \\ 4 \overline{)13} \\ \underline{-12} \leftarrow \text{Multiply } 4 \times 3 \\ 1 \leftarrow \text{Subtract } 13 - 12 \end{array}$$

There is 1 left over.

Step 3 Show the remainder.

$$\begin{array}{r} 3 \text{ R } 1 \\ 4 \overline{)13} \\ \underline{-12} \\ 1 \leftarrow \text{remainder.} \end{array}$$

Divide.

1. $3 \overline{)22}$ _____

2. $2 \overline{)19}$ _____

3. $4 \overline{)2}$ _____

4. $7 \overline{)30}$ _____

5. $6 \overline{)38}$ _____

6. $9 \overline{)75}$ _____

7. $3 \overline{)25}$ _____

8. $6 \overline{)5}$ _____

9. $8 \overline{)59}$ _____

10. $5 \overline{)47}$ _____

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Problem-Solving Skill: Multistep Problems

You can solve problems that have more than one step.

Dog food costs 50¢ a can. Sam's collie eats $1\frac{1}{2}$ cans of dog food every day. How much does it cost Sam to feed his collie for 30 days?

Step 1 Find the cost of feeding the collie for 1 day.

$$50 + \frac{1}{2} \text{ of } 50 = n$$

$$50 + 25 = 75¢$$

Step 2 Find the total cost for 30 days.

$$\begin{array}{r} \$0.75 \\ \times \quad 30 \\ \hline \$22.50 \end{array}$$

Solve.

1. A box of cat food costs \$1.20. A can costs 25¢. Sandy's cat eats one box and 30 cans of cat food each month. How much does it cost to feed Sandy's cat for 1 year?

Think:

What is the cost to feed the cat for 1 month?

3. An elephant drinks 50 gallons of water a day. There are 8 elephants in a sanctuary in Tennessee. How much water do they drink in 30 days?

Think:

How many gallons do 8 elephants drink in 1 day?

5. An elephant can eat 200 lbs of food a day. If a 25-lb bale of hay costs \$2.50, how much does it cost to feed 1 elephant for 30 days?

Think:

What is the cost to feed an elephant for 1 day?

2. Thomas feeds salad to his 2 turtles every day. In a month they eat 3 lbs of salad. How much salad does 1 turtle eat in a year?

Think:

How many pounds of salad does 1 turtle eat in 1 month?

4. Koalas eat only the leaves of eucalyptus trees. If a koala eats 2 lbs of leaves a day, and each tree produces 365 lbs of leaves a year, how many trees are needed to feed a koala for 1 year?

Think:

How many pounds of leaves does a koala eat in 1 year?

6. An African lion can eat 40 lbs of meat a day. If meat costs \$2 a pound, what does it cost a zoo to feed a lion for 30 days?

Think:

What is the cost to feed a lion for 1 day?

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Write and Evaluate Expressions

You can write and evaluate multiplication and division expressions containing variables.

Evaluate the problem.

Wendy had n books. She sold them at a garage sale for \$3.50 each.

Choose a variable and write an expression.

$$\$3.50 \times n$$

n is the number of books

How much money did Wendy make if she sold 5 books?

$$\$3.50 \times n$$

$$\$3.50 \times 5 = \$17.50$$

Evaluate each expression where $n = 10$.

1. $10n$

2. $4 + n$

3. $n \times 3$

4. $n \div 2$

5. $49 - n$

6. $n \times 9$

7. $30 \div n$

8. $n - 3$

9. $7 \times n$

10. $4n$

11. $535 - n$

12. $n \times 0$

13. $120 \div n$

14. $n \div 5$

15. $n + 10$

16. $77 + n$

17. $n \div 1$

18. $180 \div n$

19. $8n$

20. $57 - n$

21. $n - 5$

22. $339 + n$

23. $90 \div n$

24. $n + 7$

25. $n \times 21$

26. $132 - n$

27. $65 + n$

28. $11n$

Name _____

Date _____

Write and Solve Equations

Use multiplication and division equations to solve equations.

Solve $8z = 88$.

Different Ways to Solve an Equation

You can use an equation.

$$8z = 88$$

$$8 \times \blacksquare = 88$$

$$8 \times 11 = 88$$

The value z that will make the sentence true is 11.

The solution to the equation is $z = 11$.

You can use a related equation.

$$8z = 88$$

$$8 \times \blacksquare = 88$$

$$\blacksquare = 88 \div 8$$

$$11 = 88 \div 8$$

Solution: $z = 11$

Match the equation with its solution.

1. $m = 64 \div 8$

a. $m = 6$

b. $m = 10$

c. $m = 8$

2. $9p = 54$

a. $p = 9$

b. $p = 6$

c. $p = 7$

3. $s = 14 \times 3$

a. $s = 42$

b. $s = 36$

c. $s = 38$

4. $6z = 72$

a. $z = 11$

b. $z = 14$

c. $z = 12$

5. $24 \div r = 3$

a. $r = 10$

b. $r = 8$

c. $r = 13$

6. $d = 92 \div 4$

a. $d = 23$

b. $d = 22$

c. $d = 24$

7. $45 \div w = 5$

a. $w = 8$

b. $w = 9$

c. $w = 7$

8. $4q = 48$

a. $q = 16$

b. $q = 14$

c. $q = 12$

9. $7p = 63$

a. $p = 8$

b. $p = 7$

c. $p = 9$

10. $81 \div m = 27$

a. $m = 3$

b. $m = 7$

c. $m = 9$

11. $40 = 5y$

a. $y = 65$

b. $y = 8$

c. $y = 7$

12. $7p = 42$

a. $p = 8$

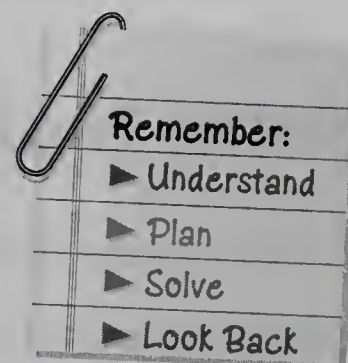
b. $p = 7$

c. $p = 6$

Name _____

Date _____

Problem-Solving Application: Using Patterns



You can use variables to describe patterns and solve problems. 1, 4, 6, 9, 11, a , b , c , d

Imagine that this pattern continues. What will d be?

Understand	Decide	Solve	Look Back
What is the pattern? 1, (+3) 4, (+2) 6, (+3) 9, (+2) 11...	How can I find the answer? Make a table or write an expression.	$11 + 3 + 2 + 3 + 2 =$ 21 $d = 21$	Count out the rest of the pattern to check. 11, (+3) 14, (+2) 16, (+3) 19, (+2) 21

Look at each pattern and answer the questions.

Row 1:	4	6	10	12	16	18
Row 2:	22	24	28	30	34	36
Row 3:	40	42				

1. If the pattern continues, what number should the last number in Row 3 be?

Think: How do the numbers change?

Row 1:	105	100	95	90	85
Row 2:	80	75	70	65	60
Row 3:	55	50	45	40	35

2. In what row will the pattern reach 0?

Think: What is the pattern?

Name _____ Date _____

Solve Multiplication Equations

You can multiply both sides of an equation by the same number.

Begin with an equation. $4q = 32$	Multiply both sides and write a new equation. $2 \times 4q = 2 \times 32$ $8q = 64$	Solve the new equation. $q = 64 \div 8$ $q = 8$	Look back. $4q = 32$ $q = 32 \div 4 = 8$ The answers are the same.
---	--	--	--

Use the same equation to complete the table below.

Multiply both sides of $4q = 32$ by this number.	Write the new equation.	Solve the new equation.	Are the solutions the same?
1. 6	_____	_____	_____
2. 3	_____	_____	_____
3. 7	_____	_____	_____
4. 5	_____	_____	_____
5. 1	_____	_____	_____
6. 9	_____	_____	_____

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Name _____

Date _____

Two-Step Functions

You can use two operations to solve for one variable.

At the Very Fussy Bookstore, you can rent books by the hour. One book costs 10¢ an hour. How much does it cost to rent a book for 2 days? Let h be the number of hours and c be the cost.

Write the equation.

$$\begin{array}{ccccccc} (2) & \times & (h) & \times & \$0.10 & = & c \\ \uparrow & & \uparrow & & \uparrow & & \uparrow \\ \text{number} & & \text{number} & & \text{cost} & & \text{total} \\ \text{of days} & & \text{of days} & & \text{per hour} & & \text{cost} \end{array}$$

Replace h with a number.

$$(2 \times 24) \times \$0.10 = c$$

Solve.

$$48 \times \$0.10 = \$4.80$$

Complete each table to find the value of the variable.

1. $y = 2x + 3$

y	x
	5

2. $n = 4m + 8$

n	m
32	

3. $a = 6b - 9$

a	b
	3

4. $r = 9s - 36$

r	s
	4

5. $5z - 6 = w$

z	w
9	

6. $p = 7m + 18$

p	m
	2

7. $q = 60 - w$

q	w
	35

8. $c = 5d + 20$

c	d
	3

9. $e = 23 + 5f$

e	f
	1

10. $g = 9h - 18$

g	h
	6

11. $j = k + 55$

j	k
	11

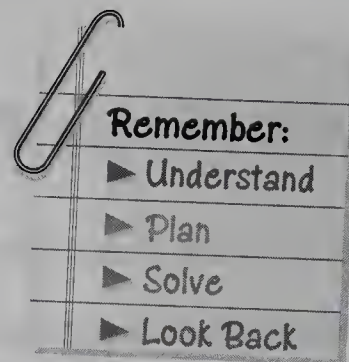
12. $p = 121 \div m$

n	m
	11

Name _____

Date _____

Problem-Solving Strategy: Write an Equation



You can write an equation to solve problems.

A pet store sells puppies for \$30 each. A pet care kit costs \$5.50.
What will it cost to buy four puppies and a pet care kit?

Understand	Plan	Solve	Look Back
<p>What do you need to find?</p> <p>The cost of four puppies plus a pet care kit.</p> <p>What do you know?</p> <ul style="list-style-type: none"> • The cost of 1 puppy. • The cost of a pet care kit. 	<p>How can you find the answer?</p> <p>Write an equation.</p> <p>Let p stand for the cost of 1 puppy.</p> <p>Let c stand for the total cost.</p> $4p + \$5.50 = c$	$4p + \$5.50 = c$ $4p = 4 \times \$30 = \120 $\$120 + 5.50 =$ <p>\$125.50</p>	<p>Does your answer match the information given?</p> <p>yes</p>

Use the Write an Equation Strategy to solve each problem.

1. Sam buys 6 gerbils for \$2.50 each, a cage for \$25.00, and food for \$1.88. How much money does she need?

Think:

What expression could you write to show the total cost?

2. Ed has 3 cats. He needs to buy each a flea collar for \$4.50, and a bag of food for \$3.50. He has \$30. Does he have enough to buy all the collars?

Think:

How can you show the cost of the collars without the cat food?

3. It costs the pet-store owner \$2 a day to feed a dog. He has 8 dogs. How much money will it cost him to feed the dogs for 30 days?

Think:

What expression could you write to show the total cost?

4. Samantha wants a puppy. She earns \$2 an hour babysitting. She babysits 3 hours a week. A puppy costs \$15.00. How many weeks will Samantha have to work?

Think:

What expression could you use to show how many weeks Samantha needs to babysit?

Name _____

Date _____

Mental Math: Multiply Multiples of 10, 100, and 1,000

You can use basic facts and patterns to help you multiply mentally.

Find 4×600 .

You can use basic facts and patterns of zeros to help you multiply.

$$4 \times 6 = 24 \quad (4 \times 6 \text{ ones})$$

$$4 \times 60 = 240 \quad (4 \times 6 \text{ tens})$$

$$4 \times 600 = 2,400 \quad (4 \times 6 \text{ hundreds})$$

$$\text{Solution: } 4 \times 600 = 2,400$$

Use basic facts and patterns to find each product.

1. 2×7 _____

2×70 _____

2×700 _____

$2 \times 7,000$ _____

2. 4×8 _____

4×80 _____

4×800 _____

$4 \times 8,000$ _____

3. 3×9 _____

3×90 _____

3×900 _____

$3 \times 9,000$ _____

4. 2×3 _____

2×30 _____

2×300 _____

$2 \times 3,000$ _____

5. 5×5 _____

5×50 _____

5×500 _____

$5 \times 5,000$ _____

6. 9×2 _____

9×20 _____

9×200 _____

$9 \times 2,000$ _____

7. 4×3 _____

4×30 _____

4×300 _____

$4 \times 3,000$ _____

8. 5×3 _____

5×30 _____

5×300 _____

$5 \times 3,000$ _____

9. 6×4 _____

6×40 _____

6×400 _____

$6 \times 4,000$ _____

10. 7×5 _____

7×50 _____

7×500 _____

$7 \times 5,000$ _____

11. 4×9 _____

4×90 _____

4×900 _____

$4 \times 9,000$ _____

12. 2×2 _____

2×20 _____

2×200 _____

$2 \times 2,000$ _____

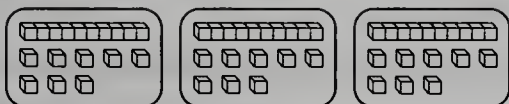
Name _____ Date _____

Modeling Multiplication by One-Digit Numbers

You can multiply numbers by using base-ten blocks.

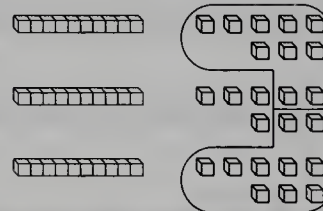
Find 3×18 .

Step 1 Use base-ten blocks to show 3 groups of 18.



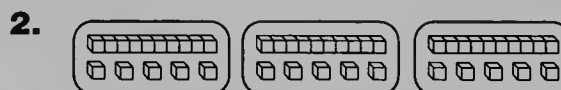
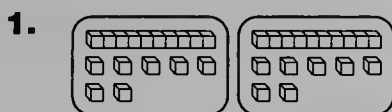
Step 2 When the number of ones blocks is 10 or greater than 10, you need to regroup.

I need to regroup 20 ones blocks as 2 tens blocks.



Solution: $3 \times 18 = 54$

Tell what multiplication sentence is shown by the blocks.



Use base-ten blocks to find each product.

3. $2 \times 13 =$ _____

4. $2 \times 16 =$ _____

5. $3 \times 12 =$ _____

6. $4 \times 12 =$ _____

7. $2 \times 24 =$ _____

8. $3 \times 21 =$ _____

9. $3 \times 19 =$ _____

10. $2 \times 26 =$ _____

11. $4 \times 14 =$ _____

12. $3 \times 24 =$ _____

13. $2 \times 32 =$ _____

14. $4 \times 24 =$ _____

Name _____

Date _____

Multiply Two-Digit Numbers by One-Digit Numbers

Sometimes you have to regroup ones or tens when you multiply.

Find 3×15 .

Step 1 Think: 3 groups of 15.



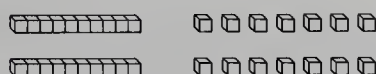
Step 2 Regroup 15 ones as 1 ten and 5 ones.



Now I have 4 tens + 5 ones. Solution: $3 \times 15 = 45$

Find each product.

1. 2×17 _____



2. 4×22 _____



Multiply.

3. $\begin{array}{r} 42 \\ \times 3 \\ \hline \end{array}$

4. $\begin{array}{r} 25 \\ \times 4 \\ \hline \end{array}$

5. $\begin{array}{r} 32 \\ \times 4 \\ \hline \end{array}$

6. $\begin{array}{r} 16 \\ \times 6 \\ \hline \end{array}$

7. $\begin{array}{r} 12 \\ \times 4 \\ \hline \end{array}$

8. $\begin{array}{r} 53 \\ \times 2 \\ \hline \end{array}$

9. $\begin{array}{r} 25 \\ \times 5 \\ \hline \end{array}$

10. $\begin{array}{r} 71 \\ \times 4 \\ \hline \end{array}$

11. $\begin{array}{r} 64 \\ \times 4 \\ \hline \end{array}$

12. $\begin{array}{r} 58 \\ \times 3 \\ \hline \end{array}$

13. $\begin{array}{r} 83 \\ \times 2 \\ \hline \end{array}$

14. $\begin{array}{r} 75 \\ \times 3 \\ \hline \end{array}$

15. $\begin{array}{r} 17 \\ \times 7 \\ \hline \end{array}$

16. $\begin{array}{r} 13 \\ \times 9 \\ \hline \end{array}$

17. $\begin{array}{r} 73 \\ \times 7 \\ \hline \end{array}$

18. $\begin{array}{r} 95 \\ \times 4 \\ \hline \end{array}$

19. $\begin{array}{r} 77 \\ \times 6 \\ \hline \end{array}$

20. $\begin{array}{r} 59 \\ \times 9 \\ \hline \end{array}$

21. $34 \times 8 =$ _____

22. $51 \times 6 =$ _____

23. $48 \times 7 =$ _____

24. $88 \times 9 =$ _____

25. $45 \times 8 =$ _____

26. $62 \times 8 =$ _____

Name _____

Date _____

Estimate Products

You can estimate products by rounding factors to their greatest value.

Estimate 6×587 .

Step 1 First, round 587 to the nearest hundred. 587 rounds to 600.

Step 2 Then multiply 6×600 . Use the basic fact that $6 \times 6 = 36$ and use a pattern to do this multiplication.

So $6 \times 600 = 3,600$

Solution: 6×587 rounds to 3,600

Estimate each product by rounding to the greatest place value.

1.
$$\begin{array}{r} 32 \\ \times 2 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 28 \\ \times 6 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 79 \\ \times 2 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 42 \\ \times 4 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 535 \\ \times 4 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 99 \\ \times 7 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 157 \\ \times 6 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 823 \\ \times 6 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 639 \\ \times 9 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 3,005 \\ \times 5 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 2,881 \\ \times 6 \\ \hline \end{array}$$

12.
$$\begin{array}{r} \$9.21 \\ \times 5 \\ \hline \end{array}$$

13. $7 \times 693 = \underline{\hspace{2cm}}$

14. $267 \times 7 = \underline{\hspace{2cm}}$

15. $8,946 \times 4 = \underline{\hspace{2cm}}$

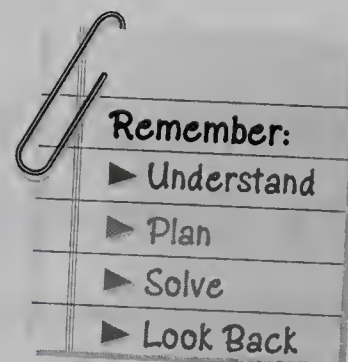
16. $\$89.97 \times 8 = \underline{\hspace{2cm}}$

Name _____

Date _____

Problem-Solving Strategy: Find a Pattern

Sometimes you need to find a pattern to solve problems by trying to find a rule that describes the pattern.



Problem

Joe wants to join the Math Club. To do so, he first needs to solve some problems to show his interest. His first problem involves finding a pattern and predicting the next two numbers of this series:

2 4 3 6 5 10 9

Find the Pattern:

How do I get from the first number to the second? Either add 2 or multiply by 2.

Now look at the third and the fourth number. Choose multiplying by 2.

How do I get from the second number to the third? By subtracting 1.

Multiply 9×2 to get 18. Then subtract 1 to get 17. The next two numbers are 18 and 17.

1. For his second problem, Joe must predict the next two numbers in the following series:

2 5 4 7 6 9 8

Think:

How do I get from the first number to the second? the second number to the third?

2. Joe finished the first two problems and was given a third problem. Predict the next two numbers in this series.

3 6 4 8 6 12 10

Think:

How do I get from the first number to the second? the second number to the third?

3. Joe's fourth problem is to predict the next two numbers in this series:

1 7 4 10 7 13 10

Think:

How do I get from the first number to the second? the second number to the third?

4. The last problem was to predict the next two letters in this series:

B D F H J

Think:

How do I get from the first letter to the second? the second letter to the third?

Name _____

Date _____

Multiply Three-Digit Numbers by One-Digit Numbers

Find 4×248 .

Step 1 Multiply the ones.
 $4 \times 8 = 32$ ones. Regroup the 32 ones as 3 tens and 2 ones.

Step 2 Multiply the tens.
 $4 \times 4 = 16$ tens. Regroup the tens as 1 hundred and 6 tens. Add the 3 regrouped tens to the 6 tens. $3 + 6 = 9$ tens.

Step 3 Multiply the hundreds. $4 \times 2 = 8$ hundreds. Add the 1 regrouped hundred to the 8 hundreds. $1 + 8 = 9$ hundreds.

 Solution: $4 \times 248 = 992$
Find each product. Estimate to check.

1.
$$\begin{array}{r} 315 \\ \times 3 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 227 \\ \times 2 \\ \hline \end{array}$$

3.
$$\begin{array}{r} \$1.89 \\ \times 4 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 427 \\ \times 4 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 629 \\ \times 5 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 799 \\ \times 3 \\ \hline \end{array}$$

7.
$$\begin{array}{r} \$1.95 \\ \times 7 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 698 \\ \times 2 \\ \hline \end{array}$$

9.
$$\begin{array}{r} \$6.22 \\ \times 5 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 318 \\ \times 9 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 544 \\ \times 8 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 279 \\ \times 6 \\ \hline \end{array}$$

13. $827 \times 3 =$ _____

14. $431 \times 4 =$ _____

15. $\$3.75 \times 5 =$ _____

16. $983 \times 2 =$ _____

17. $168 \times 4 =$ _____

18. $276 \times 6 =$ _____

19. $\$5.32 \times 6 =$ _____

20. $446 \times 8 =$ _____

21. $613 \times 2 =$ _____

Name _____ Date _____

Multiply Greater Numbers

You can multiply greater numbers.

Find $2 \times 2,476$.

Step 1 Multiply the ones.

$$2 \times 6 = 12 \text{ ones.}$$

Regroup the 12 ones as 1 ten and 2 ones.

Step 2 Multiply the tens.

$$2 \times 7 = 14 \text{ tens.}$$

Regroup the tens as 1 hundred and 4 tens.

Add the 1 regrouped ten to the 4 tens.

$$1 + 4 = 5 \text{ tens}$$

Step 3 Multiply the hundreds.

$$2 \times 4 = 8 \text{ hundreds.}$$

Add the 1 regrouped hundred to the hundreds. $1 + 8 = 9$ hundreds.

Step 4 Multiply the thousands.

$$2 \times 2 = 4 \text{ thousands.}$$

$$\text{Solution: } 2 \times 2,476 = 4,952$$

Find each product. Estimate to check.

1.
$$\begin{array}{r} 1,823 \\ \times 4 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 2,358 \\ \times 2 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 2,919 \\ \times 6 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 3,178 \\ \times 5 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 4,125 \\ \times 3 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 3,217 \\ \times 4 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 4,921 \\ \times 3 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 8,217 \\ \times 2 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 1,203 \\ \times 3 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 8,611 \\ \times 4 \\ \hline \end{array}$$

11. $1,389 \times 2 =$ _____

12. $3,871 \times 2 =$ _____

13. $5,367 \times 8 =$ _____

14. $6,118 \times 6 =$ _____

15. $8,127 \times 7 =$ _____

16. $2,929 \times 8 =$ _____

Name _____ Date _____

Multiply With Zeros

You can multiply with zero.

Find $4 \times 8,009$.
Step 1 Multiply the ones.

$$4 \times 9 = 36 \text{ ones.}$$

Regroup the 36 ones as 3 tens and 6 ones.

Step 2 Multiply the tens.

$$4 \times 0 = 0 \text{ tens.}$$

Add the 3 regrouped tens to the 0 tens.

$$3 + 0 = 3 \text{ tens.}$$

Step 3 Multiply the hundreds.

$$4 \times 0 = 0 \text{ hundreds.}$$

Step 4 Multiply the thousands.

 $4 \times 8 = 32$ thousands or 3 ten thousands and 2 thousands.

Solution: $4 \times 8,009 = 32,036$

Multiply. Estimate to check.

1.
$$\begin{array}{r} 208 \\ \times 2 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 107 \\ \times 5 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 503 \\ \times 8 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 7,023 \\ \times 7 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 4,026 \\ \times 8 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 3,102 \\ \times 5 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 2,600 \\ \times 7 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 209 \\ \times 3 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 3,021 \\ \times 6 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 1,203 \\ \times 9 \\ \hline \end{array}$$

11. $308 \times 6 =$ _____

12. $2,707 \times 9 =$ _____

13. $9,008 \times 4 =$ _____

14. $5,209 \times 5 =$ _____

15. $6,088 \times 7 =$ _____

Name _____

Date _____

Problem-Solving Skill: Choose the Operation

Sometimes you need to decide which operation to use to solve a problem.

Problem

The Wilton Elementary School is having a book sale as a fundraiser. An equal number of students from each class volunteered to help. The school has grades 1 through 5. Fifteen students from each grade volunteered. How many students helped at the book sale?

Think:

What operation will tell the total number in equal groups?

Multiplication or addition

Multiply: $5 \times 15 = 75$

or

Add: $15 + 15 + 15 + 15 + 15 = 75$

75 students volunteered.

1. The school sells 235 books at the book sale. This is 57 more books than were sold at last year's book sale. How many books were sold last year?

Think:

Do I need to find a part of an amount or a total amount?

2. Betsey and her 2 sisters shared the cost of a more expensive book that all three wanted. It cost \$24. If each girl contributed an equal amount, how much did each girl pay?

Think:

Do I need to find a part of an amount or a total amount?

3. Mrs. Schlosser worked at the book sale for 4 hours. Each hour she sold 10 books for \$15 each and 12 books for \$12 each. How many books did Mrs. Schlosser sell in all?

Think:

Do I need to find a part of an amount or a total amount?

4. The school would like to sell 1,000 books. Students have already sold 650 books. How many more books must be sold to reach this goal?

Think:

Do I need to find a part of an amount or a total amount?

Name _____ Date _____

Mental Math: Multiply Multiples of 10 and 100

You can use basic facts and patterns to multiply mentally.

Find 3×600 .

You can use basic facts and patterns of zeros to multiply.

Use the basic fact $3 \times 6 = 18$.

$3 \times 6 = 18$

$3 \times 60 = 180$

$3 \times 600 = 1,800$

Solution: $3 \times 600 = 1,800$

Use basic facts and patterns to find each product.

- | | | | |
|---|---|---|---|
| 1. 20×4

20×40

20×400
_____ | 2. 60×7

60×70

60×700
_____ | 3. 30×3

30×30

30×300
_____ | 4. 70×8

70×80

70×800
_____ |
|---|---|---|---|

Multiply.

- | | | | |
|-------------------------------------|-------------------------------------|--------------------------------------|-------------------------------------|
| 5. 90×50
_____ | 6. 40×80
_____ | 7. 600×90
_____ | 8. 900×80
_____ |
| 9. 200×60
_____ | 10. 60×300
_____ | 11. 500×300
_____ | 12. 80×30
_____ |
| 13. 600×70
_____ | 14. 80×10
_____ | 15. 50×40
_____ | 16. 70×200
_____ |
| 17. 80×800
_____ | 18. 90×800
_____ | 19. 700×90
_____ | 20. 30×40
_____ |

Name _____ Date _____

Multiply Two 2-Digit Numbers

You can multiply two 2-digit numbers.

Find 15×18 .

Step 1 Multiply 15 by 8 ones. $15 \times 8 = 120$

Step 2 Multiply 15 by 1 ten. $15 \times 10 = 150$

Step 3 Add the products. $120 + 150 = 270$

Solution: $15 \times 18 = 270$

Multiply.

1.
$$\begin{array}{r} 33 \\ \times 17 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 81 \\ \times 24 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 58 \\ \times 32 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 73 \\ \times 29 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 62 \\ \times 49 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 19 \\ \times 13 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 23 \\ \times 38 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 18 \\ \times 81 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 39 \\ \times 68 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 82 \\ \times 57 \\ \hline \end{array}$$

11. $16 \times 50 = \underline{\hspace{2cm}}$

12. $48 \times 40 = \underline{\hspace{2cm}}$

13. $33 \times 70 = \underline{\hspace{2cm}}$

14. $72 \times 60 = \underline{\hspace{2cm}}$

15. $55 \times 90 = \underline{\hspace{2cm}}$

16. $38 \times 19 = \underline{\hspace{2cm}}$

17. $12 \times 73 = \underline{\hspace{2cm}}$

18. $39 \times 14 = \underline{\hspace{2cm}}$

19. $23 \times 74 = \underline{\hspace{2cm}}$

20. $28 \times 29 = \underline{\hspace{2cm}}$

21. $18 \times 26 = \underline{\hspace{2cm}}$

22. $56 \times 23 = \underline{\hspace{2cm}}$

Name _____

Date _____

Multiply Three-Digit Numbers by Two-Digit Numbers

You can multiply a three-digit number by a two-digit number.

Find 239×14 .

Step 1 Multiply 239 by 4 ones.

$$\begin{array}{r} 13 \\ 239 \\ \times 14 \\ \hline 956 \end{array}$$

Step 2 Multiply 239 by 1 ten.

$$\begin{array}{r} 13 \\ 239 \\ \times 14 \\ \hline 956 \\ 2,390 \end{array}$$

Step 3 Add the products.

$$\begin{array}{r} 13 \\ 239 \\ \times 14 \\ \hline 956 \\ + 2,390 \\ \hline 3,346 \end{array}$$

Find each product.

1. $\begin{array}{r} 125 \\ \times 50 \\ \hline \end{array}$

2. $\begin{array}{r} 172 \\ \times 14 \\ \hline \end{array}$

3. $\begin{array}{r} 216 \\ \times 29 \\ \hline \end{array}$

4. $\begin{array}{r} 421 \\ \times 36 \\ \hline \end{array}$

5. $\begin{array}{r} 393 \\ \times 71 \\ \hline \end{array}$

6. $\begin{array}{r} 530 \\ \times 40 \\ \hline \end{array}$

7. $\begin{array}{r} 209 \\ \times 62 \\ \hline \end{array}$

8. $\begin{array}{r} 646 \\ \times 77 \\ \hline \end{array}$

9. $\begin{array}{r} 817 \\ \times 21 \\ \hline \end{array}$

10. $\begin{array}{r} 758 \\ \times 54 \\ \hline \end{array}$

11. $\begin{array}{r} 118 \\ \times 60 \\ \hline \end{array}$

12. $\begin{array}{r} 537 \\ \times 75 \\ \hline \end{array}$

13. $\begin{array}{r} 903 \\ \times 37 \\ \hline \end{array}$

14. $\begin{array}{r} 498 \\ \times 53 \\ \hline \end{array}$

15. $\begin{array}{r} 107 \\ \times 69 \\ \hline \end{array}$

16. $203 \times 35 =$ _____

17. $318 \times 12 =$ _____

18. $904 \times 17 =$ _____

19. $291 \times 45 =$ _____

Name _____

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Problem-Solving Application: Use a Pictograph

Sometimes you need to use a graph to solve a word problem.

Remember:


▶ Understand


▶ Plan

▶ Solve

▶ Look Back

The students of Wellington Elementary School celebrated Arbor Day by planting trees at the new state park. The graph shows how many trees of each type the students planted. How many oak trees did the students plant?


































Think: How does the number of  help me solve this problem?

Each  represents 10 trees. So I can multiply the number of symbols by 10.

$$4 \times 10 = 40$$

Solution: They planted 40 oak trees.

Tree Species

Tree Types	Number of Trees
Oak	   
Maple	        
Walnut	        
Poplar	    
Sweet gum	     

 = 10 trees


1. How many maple trees did the students plant?

Think:

How many trees does a half of a  represent?


2. How many more sweet gum trees than poplar trees did the students plant?

Think:

How does the number of  help me solve this problem?


3. How many walnut and maple trees did the students plant?

Think:

How does the number of  help me solve this problem?

4. How many trees did the students plant in all?

Think:

How does the number of  help me solve this problem?

Name _____ Date _____

Modeling Division

 Share \$10 \$1 \$1 equally among 4 friends.

Think: \$10 has a greater value than \$1.

I have to regroup, or exchange, one \$10 as ten \$1.

$10 \text{ } \$1 + 2 \text{ } \$1 = 12 \text{ } \$1$

Put 12 \$1 into 4 equal groups.

Each friend gets 3 \$1.

Use play money to make equal groups. Tell if there is a remainder.

1. Share \$10 \$10 \$1 equally among 7 friends.

 How many \$1 are in each equal group? _____

2. Share \$10 \$1 \$1 equally among 5 friends.

 How many \$1 are in each equal group? _____

 How many \$1 are left over? _____

3. Share \$10 \$10 \$1 \$1 \$1 \$1 equally among 8 friends.

 How many \$1 are in each equal group? _____

4. Share \$10 \$10 \$1 \$1 \$1 \$1 equally among 9 friends.

 How many \$1 are in each equal group? _____

 How many \$1 are left over? _____

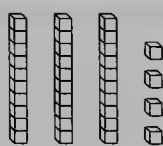
Name _____

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Two-Digit Quotients

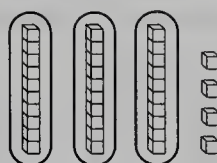
Divide. $34 \div 3 = \blacksquare$ or $3\overline{)34}$

Step 1 Use base-ten blocks to show 34.



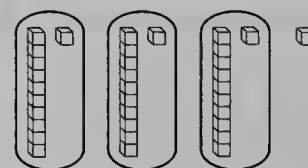
$$3\overline{)34}$$

Step 2 Divide the 3 tens into 3 equal groups. Put 1 ten in each group.



$$\begin{array}{r} 1 \\ 3\overline{)34} \\ -3 \\ \hline 0 \end{array}$$

Step 3 Divide the 4 ones into 3 groups. Put 1 one in each group. There is one left over.



$$\begin{array}{r} 11 \text{ R}1 \\ 3\overline{)34} \\ -3 \\ \hline 04 \\ -3 \\ \hline 1 \end{array}$$

Divide. Tell if there is a remainder.

1. $3\overline{)21}$

2. $2\overline{)82}$

3. $6\overline{)27}$

4. $3\overline{)35}$

5. $4\overline{)85}$

6. $7\overline{)77}$

7. $2\overline{)67}$

8. $3\overline{)94}$

9. $20 \div 8 =$

10. $49 \div 5 =$

11. $67 \div 3 =$

12. $45 \div 4 =$

13. $58 \div 5 =$

14. $92 \div 7 =$

15. $38 \div 5 =$

16. $75 \div 4 =$

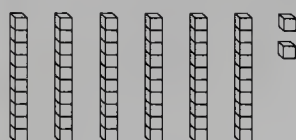
Name _____

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Regrouping in Division

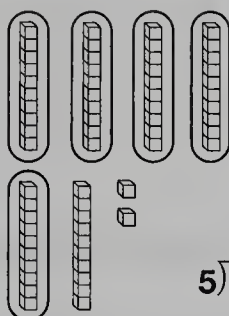
Divide. $62 \div 5 = \blacksquare$ or $5 \overline{)62}$

Step 1 Use base-ten blocks to show 62.



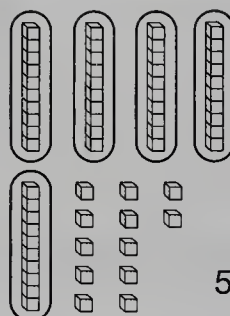
$$5 \overline{)62}$$

Step 2 Divide 6 tens into 5 groups. Put 1 ten in each group. There is 1 ten left over.



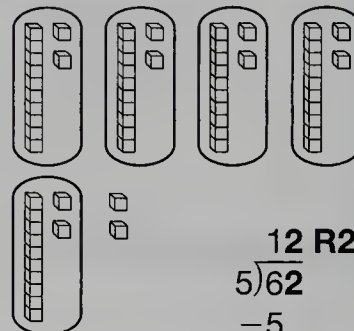
$$\begin{array}{r} 1 \\ 5 \overline{)62} \\ -5 \\ \hline 1 \end{array}$$

Step 3 Regroup the 1 ten left over as 10 ones.



$$\begin{array}{r} 1 \\ 5 \overline{)62} \\ -5 \downarrow \\ \hline 12 \end{array}$$

Step 4 Divide the 12 ones. Put 2 ones in each group. There are 2 left over.



$$\begin{array}{r} 12 \text{ R}2 \\ 5 \overline{)62} \\ -5 \\ \hline 12 \\ -10 \\ \hline 2 \end{array}$$

Divide.

1. $3 \overline{)41}$

2. $2 \overline{)53}$

3. $5 \overline{)68}$

4. $3 \overline{)46}$

5. $4 \overline{)72}$

6. $7 \overline{)84}$

7. $2 \overline{)31}$

8. $3 \overline{)58}$

9. $86 \div 5 =$

10. $75 \div 4 =$

11. $39 \div 2 =$

12. $73 \div 2 =$

13. $97 \div 6 =$

14. $83 \div 3 =$

15. $78 \div 5 =$

16. $79 \div 4 =$

Name _____

Date _____

Problem-Solving Skill: Interpreting Remainders

Sometimes you must decide how to interpret the remainder to solve a problem. Sometimes the remainder is the answer. Sometimes you increase the quotient. Sometimes you drop the remainder.

Angela owns a seashell shop. She is arranging 93 seashells in 6 rows. Any shells left over will not be placed on display. How many shells will not be on display?

$$\begin{array}{r} 15 \text{ R}3 \\ 6 \overline{)93} \\ \underline{-6} \\ 33 \\ \underline{-30} \\ 3 \end{array}$$

Think: Will the answer tell how many will be on display or how many will not be on display?

The remainder will tell how many shells are not on display. There will be 3 shells not on display.

Solve.

1. Ariel is making seashell necklaces. Each necklace is made from 7 seashells. How many necklaces can be made from 88 seashells?

Think:

Can a necklace be made with fewer than 7 seashells?

2. Rafael is putting shells in boxes. Each box can hold 8 seashells. How many boxes will he need to hold 75 seashells?

Think:

Can a box hold fewer than 8 seashells?

3. Adam is making seashell bracelets. Each bracelet is made from 4 seashells. If he has 51 shells to make bracelets, how many shells will he have left?

Think:

Will the answer tell how many shells he has used or how many he has left?

4. Nicole needs to ship 38 shells to a customer. Each box holds 7 shells. How many shells will not be in the boxes?

Think:

Will the answer tell how many shells will be in boxes or how many shells will not be in boxes?

Name _____

Date _____

Mental Math: Divide Multiples of 10, 100, and 1,000

 Divide. $3,500 \div 5 = \blacksquare$ or $3 \overline{)3,500}$
Find $3,500 \div 5$
Think: What basic fact can you use to find the answer?

$$35 \div 5 = 7$$

$$35 \div 5 = 7$$

$$350 \div 5 = 70$$

$$3,500 \div 5 = 700$$

As the number of zeros in the dividend increases, so does the number of zeros in the quotient.

$$\text{So, } 3,500 \div 5 = 700$$

Divide.

1. $90 \div 9 = \underline{\hspace{2cm}}$

$900 \div 9 = \underline{\hspace{2cm}}$

$9,000 \div 9 = \underline{\hspace{2cm}}$

2. $24 \div 4 = \underline{\hspace{2cm}}$

$240 \div 4 = \underline{\hspace{2cm}}$

$2,400 \div 4 = \underline{\hspace{2cm}}$

3. $30 \div 5 = \underline{\hspace{2cm}}$

$300 \div 5 = \underline{\hspace{2cm}}$

$3,000 \div 5 = \underline{\hspace{2cm}}$

4. $14 \div 2 = \underline{\hspace{2cm}}$

$140 \div 2 = \underline{\hspace{2cm}}$

$1,400 \div 2 = \underline{\hspace{2cm}}$

5. $15 \div 5 = \underline{\hspace{2cm}}$

$150 \div 5 = \underline{\hspace{2cm}}$

$1,500 \div 5 = \underline{\hspace{2cm}}$

6. $35 \div 7 = \underline{\hspace{2cm}}$

$350 \div 7 = \underline{\hspace{2cm}}$

$3,500 \div 7 = \underline{\hspace{2cm}}$

7. $45 \div 5 = \underline{\hspace{2cm}}$

$450 \div 5 = \underline{\hspace{2cm}}$

$4,500 \div 5 = \underline{\hspace{2cm}}$

8. $21 \div 3 = \underline{\hspace{2cm}}$

$210 \div 3 = \underline{\hspace{2cm}}$

$2,100 \div 3 = \underline{\hspace{2cm}}$

9. $12 \div 2 = \underline{\hspace{2cm}}$

$120 \div 2 = \underline{\hspace{2cm}}$

$1,200 \div 2 = \underline{\hspace{2cm}}$

10. $480 \div 8 = \underline{\hspace{2cm}}$

11. $160 \div 4 = \underline{\hspace{2cm}}$

12. $420 \div 6 = \underline{\hspace{2cm}}$

13. $1,800 \div 2 = \underline{\hspace{2cm}}$

14. $2,100 \div 3 = \underline{\hspace{2cm}}$

15. $2,700 \div 9 = \underline{\hspace{2cm}}$

16. $5,400 \div 6 = \underline{\hspace{2cm}}$

17. $1,600 \div 4 = \underline{\hspace{2cm}}$

18. $2,400 \div 3 = \underline{\hspace{2cm}}$

Name _____

Date _____

Three-Digit Quotients

Divide. $672 \div 4 = \blacksquare$ or $4 \overline{)672}$
Step 1 Divide the hundreds.

Think: $4 \overline{)6}$

$$\begin{array}{r} 1 \\ 4 \overline{)672} \\ \underline{-4} \\ 2 \end{array}$$

Step 2 Bring down the tens.

Think: $4 \overline{)27}$

$$\begin{array}{r} 16 \\ 4 \overline{)672} \\ \underline{-4} \downarrow \\ 27 \\ \underline{-24} \\ 3 \end{array}$$

Step 3 Bring down the ones.

Think: $4 \overline{)32}$

$$\begin{array}{r} 168 \\ 4 \overline{)672} \\ \underline{-4} \downarrow \\ 27 \\ \underline{-24} \downarrow \\ 32 \\ \underline{-32} \\ 0 \end{array}$$

Divide.

1. $3 \overline{)639}$

2. $2 \overline{)329}$

3. $5 \overline{)789}$

4. $3 \overline{)580}$

5. $4 \overline{)537}$

6. $7 \overline{)924}$

7. $2 \overline{)349}$

8. $6 \overline{)778}$

9. $3 \overline{)479}$

10. $2 \overline{)584}$

11. $5 \overline{)549}$

12. $4 \overline{)911}$

13. $3 \overline{)555}$

14. $4 \overline{)525}$

15. $5 \overline{)776}$

16. $6 \overline{)701}$

Name _____

Date _____

Place the First Digit of the Quotient

Divide. $336 \div 4 = \blacksquare$ or $4 \overline{)336}$

Step 1 Decide where to place the first digit.

$$\begin{array}{r} 0 \\ 4 \overline{)337} \end{array}$$

Think: $3 < 4$ so there are not enough hundreds to divide.

Step 2 $33 > 4$ so place the first digit in the tens place.

$$\begin{array}{r} 8 \\ 4 \overline{)337} \\ -32 \\ \hline 1 \end{array}$$

Step 3 Bring down the ones. Divide the ones.

$$\begin{array}{r} 84 \text{ R}1 \\ 4 \overline{)337} \\ -32 \downarrow \\ \hline 17 \\ -16 \\ \hline 1 \end{array}$$

Divide.

1. $3 \overline{)176}$

2. $2 \overline{)159}$

3. $5 \overline{)327}$

4. $3 \overline{)238}$

5. $4 \overline{)317}$

6. $7 \overline{)316}$

7. $2 \overline{)134}$

8. $6 \overline{)518}$

9. $179 \div 3 =$

10. $173 \div 2 =$

11. $497 \div 5 =$

12. $346 \div 4 =$

13. $221 \div 3 =$

14. $377 \div 4 =$

15. $491 \div 5 =$

16. $555 \div 6 =$

Name _____

Date _____

Divide Money

Divide. $\$7.95 \div 3 = \blacksquare$ or $3 \overline{) \$7.95}$
Step 1 Divide as if dividing whole numbers.

$$\begin{array}{r} 265 \\ 3 \overline{) \$7.95} \\ \underline{-6} \\ 19 \\ \underline{-18} \\ 15 \\ \underline{-15} \\ 0 \end{array}$$

Step 2 Write the dollar sign and decimal point in the quotient.

$$\begin{array}{r} \$2.65 \\ 3 \overline{) \$7.95} \\ \underline{-6} \\ 19 \\ \underline{-18} \\ 15 \\ \underline{-15} \\ 0 \end{array}$$

Divide.

1. $3 \overline{) \$5.43}$

2. $2 \overline{) \$4.32}$

3. $5 \overline{) \$4.20}$

4. $3 \overline{) \$6.45}$

5. $4 \overline{) \$8.52}$

6. $7 \overline{) \$5.95}$

7. $2 \overline{) \$496}$

8. $6 \overline{) \$7.44}$

9. $3 \overline{) \$132}$

10. $2 \overline{) \$8.32}$

11. $5 \overline{) \$9.25}$

12. $4 \overline{) \$3.12}$

13. $2 \overline{) \$0.92}$

14. $3 \overline{) \$0.39}$

15. $4 \overline{) \$0.88}$

16. $5 \overline{) \$1.20}$

Name _____

Date _____

Zeros in the Quotient

Divide. $525 \div 5 = \blacksquare$ or $5 \overline{)525}$

Step 1 Decide where to place the first digit. Divide the hundreds.

$$\begin{array}{r} 1 \\ 5 \overline{)525} \\ \underline{-5} \\ 0 \end{array}$$

Step 2 Bring down the tens place and see if you can divide the tens. Since $2 < 5$, you cannot divide, so write a zero in the tens place.

$$\begin{array}{r} 10 \\ 5 \overline{)525} \\ \underline{-5} \downarrow \\ 02 \end{array}$$

Step 3 Bring down the one and divide the ones.

$$\begin{array}{r} 105 \\ 5 \overline{)525} \\ \underline{-5} \downarrow \downarrow \\ 025 \\ \underline{-25} \\ 0 \end{array}$$

Divide.

1. $7 \overline{)714}$

2. $2 \overline{)416}$

3. $3 \overline{)312}$

4. $6 \overline{)659}$

5. $4 \overline{)417}$

6. $7 \overline{)741}$

7. $2 \overline{)321}$

8. $6 \overline{)613}$

9. $3 \overline{)910}$

10. $2 \overline{)610}$

11. $5 \overline{)530}$

12. $4 \overline{)280}$

13. $4 \overline{)428}$

14. $5 \overline{)514}$

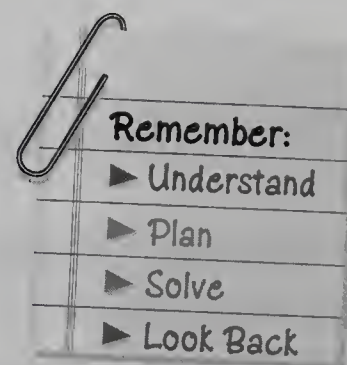
15. $5 \overline{)516}$

16. $3 \overline{)319}$

Name _____

Date _____

Problem-Solving Strategy: Work Backward



On Monday William repaired 8 pairs of shoes.

Then customers brought 5 pairs in for repair. At the end of the day, there were 12 pairs of shoes waiting to be fixed.

How many pairs of shoes were in the shop on Monday morning?

Start with the 12 pairs of shoes in the store at the end of the day.

12 pairs	- 5	7 pairs	+ 8	15 pairs
There are 12 pairs at the end of the day.	Subtract the 5 pairs brought in during the day.	Which leaves 7 pairs that need repairs.	Add 8 pairs William repaired on Monday.	There were 15 pairs in the shop on Monday morning.

Solve.

- Sherry squeezed some oranges for juice. Tracy brought her 12 more oranges. When she finished, Sherry had squeezed 29 oranges and there were 3 left untouched. How many oranges did Sherry start with?

Think:

What information should I start with?

- Richard ran out of nails while building a table. He bought a box of 100 nails and finished the table. He used 60 nails altogether. When he finished, there were 70 new nails left. How many nails did Richard have originally?

Think:

What information should I start with?

- Mr. Smith was grilling veggie burgers for the party. The children ate 22 of the burgers. Later 7 more burgers were eaten. There were 5 burgers left. How many veggie burgers did Mr. Smith grill?

Think:

What information should I start with?

- At the end of the 4 weeks Joan had read 4 more books than needed. She read 6 books each week during the 4 weeks. How many books did she need to read?

Think:

What information should I start with?

Name _____ Date _____

Divisibility Rules

Numbers that are divisible don't have remainders.

Numbers that are not divisible have remainders.

Numbers Divisible by 2 (even numbers)

$\begin{array}{r} 0 \\ 2 \overline{)0} \end{array}$	$\begin{array}{r} 1 \\ 2 \overline{)2} \end{array}$	$\begin{array}{r} 2 \\ 2 \overline{)4} \end{array}$	$\begin{array}{r} 3 \\ 2 \overline{)6} \end{array}$	$\begin{array}{r} 4 \\ 2 \overline{)8} \end{array}$	and so on...
$\begin{array}{r} 5 \\ 2 \overline{)10} \end{array}$	$\begin{array}{r} 6 \\ 2 \overline{)12} \end{array}$	$\begin{array}{r} 7 \\ 2 \overline{)14} \end{array}$	$\begin{array}{r} 8 \\ 2 \overline{)16} \end{array}$	$\begin{array}{r} 9 \\ 2 \overline{)18} \end{array}$	

Numbers not Divisible by 2 (odd numbers)

$\begin{array}{r} 0 \text{ R1} \\ 2 \overline{)1} \end{array}$	$\begin{array}{r} 1 \text{ R1} \\ 2 \overline{)3} \end{array}$	$\begin{array}{r} 2 \text{ R1} \\ 2 \overline{)5} \end{array}$	$\begin{array}{r} 3 \text{ R1} \\ 2 \overline{)7} \end{array}$	and so on...
$\begin{array}{r} 4 \text{ R1} \\ 2 \overline{)9} \end{array}$	$\begin{array}{r} 5 \text{ R1} \\ 2 \overline{)11} \end{array}$	$\begin{array}{r} 6 \text{ R1} \\ 2 \overline{)13} \end{array}$	$\begin{array}{r} 7 \text{ R1} \\ 2 \overline{)15} \end{array}$	

Numbers Divisible by 5

$\begin{array}{r} 1 \\ 5 \overline{)5} \end{array}$	$\begin{array}{r} 2 \\ 5 \overline{)10} \end{array}$	$\begin{array}{r} 3 \\ 5 \overline{)15} \end{array}$	$\begin{array}{r} 4 \\ 5 \overline{)20} \end{array}$	$\begin{array}{r} 5 \\ 5 \overline{)25} \end{array}$	and so on...
$\begin{array}{r} 6 \\ 5 \overline{)30} \end{array}$	$\begin{array}{r} 7 \\ 5 \overline{)35} \end{array}$	$\begin{array}{r} 8 \\ 5 \overline{)40} \end{array}$	$\begin{array}{r} 9 \\ 5 \overline{)45} \end{array}$	$\begin{array}{r} 10 \\ 5 \overline{)50} \end{array}$	

Numbers not Divisible by 5

$\begin{array}{r} 1 \text{ R1} \\ 5 \overline{)6} \end{array}$	$\begin{array}{r} 1 \text{ R2} \\ 5 \overline{)7} \end{array}$	$\begin{array}{r} 1 \text{ R3} \\ 5 \overline{)8} \end{array}$	$\begin{array}{r} 1 \text{ R4} \\ 5 \overline{)9} \end{array}$	and so on...
$\begin{array}{r} 2 \text{ R1} \\ 5 \overline{)11} \end{array}$	$\begin{array}{r} 2 \text{ R2} \\ 5 \overline{)12} \end{array}$	$\begin{array}{r} 2 \text{ R3} \\ 5 \overline{)13} \end{array}$	$\begin{array}{r} 2 \text{ R4} \\ 5 \overline{)14} \end{array}$	

Numbers Divisible by 10

$\begin{array}{r} 1 \\ 10 \overline{)10} \end{array}$	$\begin{array}{r} 2 \\ 10 \overline{)20} \end{array}$	$\begin{array}{r} 3 \\ 10 \overline{)30} \end{array}$	$\begin{array}{r} 4 \\ 10 \overline{)40} \end{array}$	$\begin{array}{r} 5 \\ 10 \overline{)50} \end{array}$	and so on...
$\begin{array}{r} 6 \\ 10 \overline{)60} \end{array}$	$\begin{array}{r} 7 \\ 10 \overline{)70} \end{array}$	$\begin{array}{r} 8 \\ 10 \overline{)80} \end{array}$	$\begin{array}{r} 9 \\ 10 \overline{)90} \end{array}$	$\begin{array}{r} 10 \\ 10 \overline{)100} \end{array}$	

Numbers not Divisible by 10

$\begin{array}{r} 1 \text{ R1} \\ 10 \overline{)11} \end{array}$	$\begin{array}{r} 1 \text{ R2} \\ 10 \overline{)12} \end{array}$	$\begin{array}{r} 1 \text{ R3} \\ 10 \overline{)13} \end{array}$	$\begin{array}{r} 1 \text{ R4} \\ 10 \overline{)14} \end{array}$	and so on...
$\begin{array}{r} 1 \text{ R5} \\ 10 \overline{)15} \end{array}$	$\begin{array}{r} 1 \text{ R6} \\ 10 \overline{)16} \end{array}$	$\begin{array}{r} 1 \text{ R7} \\ 10 \overline{)17} \end{array}$	$\begin{array}{r} 1 \text{ R8} \\ 10 \overline{)18} \end{array}$	

Complete this table. Use an X to show divisibility.

		40	15	22	60	98	17	75
1.	Divisible by 2							
2.	Not Divisible by 2							
3.	Divisible by 5							
4.	Divisible by 10							

Name _____

Date _____

Prime and Composite Numbers

Prime Numbers

A prime number is a whole number that has exactly two factors, 1 and itself.

Example:

2 is a prime number because it has only two factors, **1** and **2**.

$$1 \times 2 = 2$$

No other factors multiplied together will give you 2, so 2 is a prime number.

Another Example:

7 is a prime number because **1** and **7** are the only factors.

$$1 \times 7 = 7$$

Composite Numbers

A composite number is a number that has more than two factors:

Example:

6 is a composite number because it has more than two factors:

$$1 \times 6 = 6 \text{ and } 2 \times 3 = 6$$

1, 2, 3, and **6** are factors of 6, so 6 is a composite number.

Another Example:

18 is a composite number because it has 6 factors, **1, 2, 3, 6, 9,** and **18**.

$$1 \times 18 = 18, 2 \times 9 = 18 \text{ and } 3 \times 6 = 18$$

Write the factors for the numbers in the table below.

Then, decide whether each number is prime or composite.

	Number	Factors	Prime or Composite
1.	3		
2.	6		
3.	7		
4.	8		
5.	12		
6.	13		
7.	22		
8.	25		

Name _____


Date _____


Modeling Averages

Mike read 2 books, Emily read 4 books, and Matt read 9 books.

What is the average number of books read?

Step 1 Use counters to stand for each number of books.


2 books

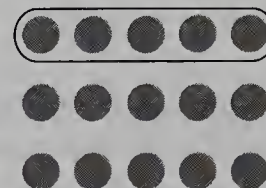

4 books


9 books

Step 2 Arrange the counters so that there is the same number of counters in each row.



Answer: There are 5 counters in each row.



so, the average number of books read is 5.

Use counters to find the average of the numbers in each group.

1. 2, 6

2. 3, 7

3. 5, 7

4. 1, 3, 5

5. 2, 4, 6

6. 3, 4, 5

7. 4, 5, 7, 8

8. 3, 5, 7, 5

9. 6, 10, 8, 4

10. 4, 2, 2, 5, 7

11. 1, 3, 5, 7, 9

12. 7, 4, 3, 6

13. 1, 1, 1, 1, 1

14. 5, 8, 5

15. 7, 2, 6

Name _____

Date _____

Find Averages

Find the average of 29, 11, and 23.

Step 1 Find the sum of all the numbers.

$$\begin{array}{r} 1 \\ 29 \\ 11 \\ +23 \\ \hline 63 \end{array}$$

Step 2 Count the number of addends.

There are 3 addends.
29, 11 and 23

$$\begin{array}{r} 29 \leftarrow \\ 11 \leftarrow \\ +23 \leftarrow \\ \hline 63 \end{array} \quad \begin{array}{l} 3 \\ \text{addends} \end{array}$$

Step 3 Divide the sum of the numbers by the number of addends to find the average:

$$\begin{array}{r} 21 \\ 3 \overline{)63} \\ \underline{-6} \\ 03 \\ \underline{-3} \\ 0 \end{array}$$

So, the average is 21

Find the average of the numbers in each group.

1. 5, 4, 1, 10

2. 34, 12, 26

3. 103, 139, 166

4. 16, 7, 8, 21

5. 7, 103, 35, 12, 13

6. 20, 10, 60, 70

7. 16, 22, 64

8. 55, 73, 19, 28, 50

9. 33, 100, 209

10. 45, 63, 99

11. 36, 10, 23, 35

12. 102, 305, 268

13. 13, 26, 42

14. 28, 41, 30, 45

15. 25, 32, 90, 41, 72

Name _____

Date _____

Estimate Quotients

Estimate $9\overline{)462}$.

Step 1 Use basic facts and multiples of 10 to find a new dividend.

Think: $9 \times ? =$ a number close to 46

$$9 \times 5 = 45$$

$$45 \times 10 = 450$$

So, $9\overline{)462} \rightarrow 9\overline{)450}$

Step 2 Divide.

$$\begin{array}{r} 50 \\ 9\overline{)450} \\ \underline{-45} \\ 00 \end{array}$$

Step 3 Multiply the quotient by the divisor. Compare the product with the original dividend to check the estimate.

$$\begin{array}{r} 50 \\ \times 9 \\ \hline 450 \end{array}$$

450 is close to 462, so the estimate is reasonable.

Estimate each quotient.

1. $8\overline{)158}$

2. $4\overline{)204}$

3. $7\overline{)130}$

4. $2\overline{)392}$

5. $4\overline{)314}$

6. $9\overline{)551}$

7. $3\overline{)113}$

8. $5\overline{)341}$

9. $8\overline{)735}$

10. $7\overline{)204}$

11. $6\overline{)255}$

12. $6\overline{)287}$

13. $8\overline{)430}$

14. $6\overline{)373}$

15. $3\overline{)280}$

16. $5\overline{)404}$

Name _____

Date _____

Divide Greater Numbers

Divide. $2,756 \div 4 = \blacksquare$ or $4 \overline{)2,756}$

Step 1 Divide the thousands.

$$\begin{array}{r} 0 \\ 4 \overline{)2,756} \\ -0 \\ \hline 2 \end{array}$$

Think: 4 can't divide into 2, so you need to regroup.

Step 2 Regroup the thousands as hundreds and divide the hundreds.

$$\begin{array}{r} 06 \\ 4 \overline{)2,756} \\ -0 \downarrow \\ 27 \\ -24 \\ \hline 3 \end{array}$$

Step 3 Complete the division.

$$\begin{array}{r} 689 \\ 4 \overline{)2,756} \\ -0 \downarrow \\ 27 \\ -24 \downarrow \\ 35 \\ -32 \downarrow \\ 36 \\ -36 \\ \hline 0 \end{array}$$

Divide.

1. $5 \overline{)4,890}$

2. $2 \overline{)1,197}$

3. $5 \overline{)8,653}$

4. $3 \overline{)10,498}$

5. $4 \overline{)1,206}$

6. $7 \overline{)8,641}$

7. $2 \overline{)13,014}$

8. $6 \overline{)\$6,186}$

9. $5,341 \div 3 =$

10. $\$6,541 \div 2 =$

11. $\$36.35 \div 5 =$

12. $13,272 \div 4 =$

13. $4,580 \div 9 =$

14. $3,730 \div 5 =$

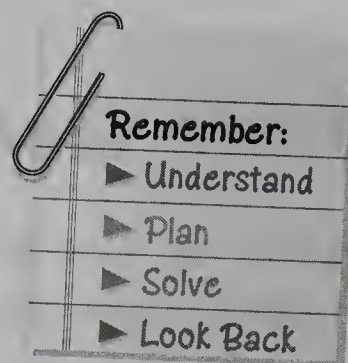
15. $2,802 \div 3 =$

16. $40,430 \div 5 =$

Name _____

Date _____

Problem-Solving Application: Use Operations



On the first day of the festival, 12,604 people attended.
On the second day, 8,726 people attended. What was
the average number of people who attended each day?

Think:

What do I know?

- The number of people who attended.

What do I need to do?

- Find the average.

First add the number of people who attended the first two days of the festival.

$$\begin{array}{r} 12,604 \\ + 8,726 \\ \hline 21,330 \end{array}$$

Then divide that sum by 2.

$$21,330 \div 2 = 10,665$$

The average number of people who attended the festival each day was 10,665.

Is your answer reasonable?

About 21,000 people attended and half of 21,000 is 10,500. Yes, the answer is reasonable.

Solve.

1. There were 9 marching bands in the parade at the beginning of the festival. There was an average of 145 members in each band. How many band members marched in the parade?

Think:

Do I multiply or divide to solve this problem?

3. One day twice as many people rode the carousel as rode the Ferris Wheel. A total of 11,925 people rode those rides that day. About how many people rode each?

Think:

Can I use estimation to solve this problem?

2. There were 128 pies entered in the pie contest. The pies were set out on 8 tables. If each table held the same number of pies, how many pies were set out on each table?

Think:

Do I multiply or divide to solve this problem?

4. Joseph bought 5 items at the food concession stand. He paid \$8.75 altogether. What was the average price of the items Joseph bought?

Think:

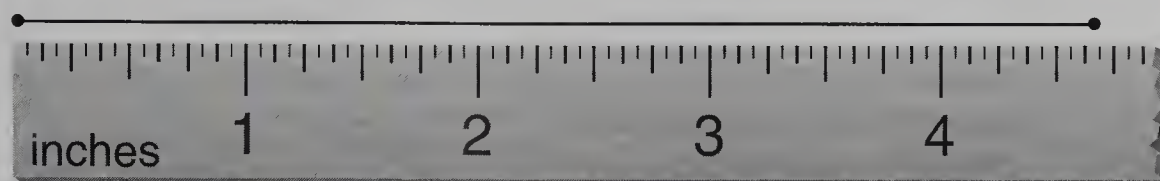
Do I multiply or divide to solve this problem?

Name _____

Date _____

Inch, Half Inch, and Quarter Inch

Measure the line segment to the nearest inch, half inch, and quarter inch.



Nearest inch:

Think: Which inch mark is the end of the line segment closest to?

The end is closest to the 5 inch mark.

Nearest half inch:

Think: Which half inch mark is the end of the line segment closest to?

The end is closest to the $4\frac{1}{2}$ inch mark.

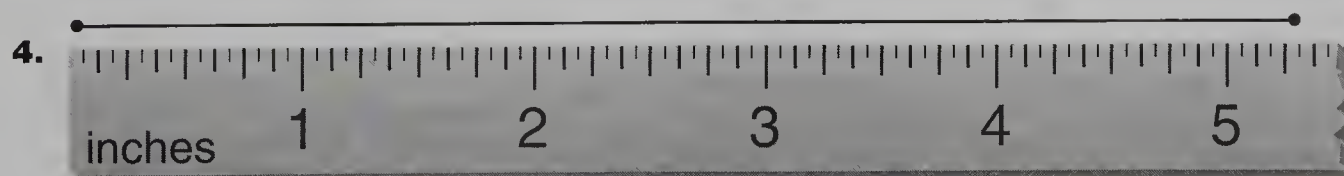
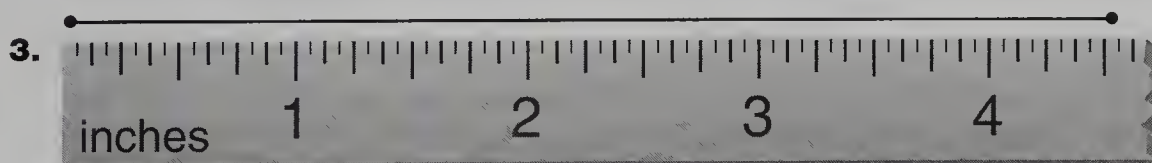
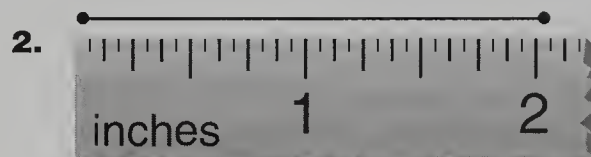
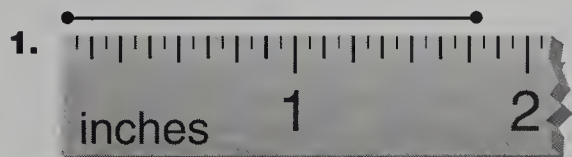
Nearest quarter inch:

Think: Which quarter inch mark is the end of the line segment closest to?

The end is closest to the $4\frac{3}{4}$ inch mark.

Estimate the length of each line segment to the nearest inch.

Then measure to the nearest inch, half inch, and quarter inch.

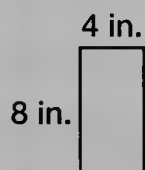


Name _____

Date _____

Perimeter and Customary Units of Length

Find the perimeter of the figure.



Think: What do I need to find the perimeter?

Perimeter is the distance around a figure. So you need the lengths of each side.

The lengths of the other two sides are 4 inches and 8 inches.

Think: How do I find the perimeter?

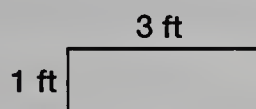
You add the lengths of the sides.

$$4 \text{ in.} + 8 \text{ in.} + 4 \text{ in.} + 8 \text{ in.} = 24 \text{ in.}$$

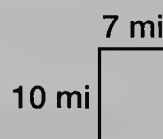
The perimeter is 24 inches.

Find the perimeter of each rectangle or square.

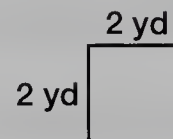
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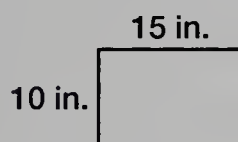
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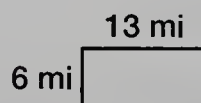
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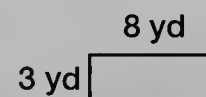
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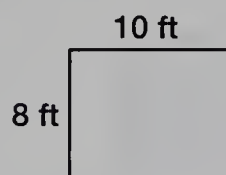
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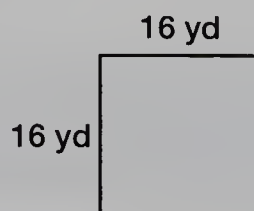
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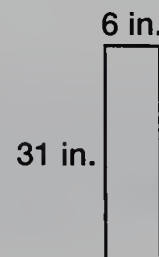
7.



8.



9.



Name _____ Date _____

Customary Units of Capacity and Weight

Find the missing number.

$$8 \text{ qt} = \underline{\hspace{2cm}} \text{ pt}$$

Think: When changing from larger units to smaller units, the number of units increases. So multiply.

$$8 \times 2 = 16$$

The missing number is 16. 8 quarts = 16 pints.

Find the missing number.

$$32 \text{ oz} = \underline{\hspace{2cm}} \text{ lb}$$

Think: When changing smaller units to larger units, the numbers of units decreases. So divide.

$$32 \div 16 = 2$$

The missing number is 2. 32 ounces = 2 pounds

Find each missing number.

1. $\underline{\hspace{2cm}} \text{ qt} = 8 \text{ c}$

2. $4 \text{ gal} = \underline{\hspace{2cm}} \text{ qt}$

3. $\underline{\hspace{2cm}} \text{ gal} = 16 \text{ pt}$

4. $\underline{\hspace{2cm}} \text{ qt} = 12 \text{ c}$

5. $3 \text{ gal} = \underline{\hspace{2cm}} \text{ c}$

6. $11 \text{ pt} = \underline{\hspace{2cm}} \text{ c}$

7. $\underline{\hspace{2cm}} \text{ gal} = 24 \text{ qt}$

8. $\underline{\hspace{2cm}} \text{ pt} = 30 \text{ c}$

9. $\underline{\hspace{2cm}} \text{ qt} = 14 \text{ pt}$

10. $4 \text{ gal} = \underline{\hspace{2cm}} \text{ pt}$

11. $5 \text{ qt} = \underline{\hspace{2cm}} \text{ c}$

12. $\underline{\hspace{2cm}} \text{ gal} = 56 \text{ pt}$

13. $2 \text{ lb} = \underline{\hspace{2cm}} \text{ oz}$

14. $48 \text{ oz} = \underline{\hspace{2cm}} \text{ lb}$

15. $\underline{\hspace{2cm}} \text{ oz} = 5 \text{ lb}$

16. $\underline{\hspace{2cm}} \text{ lb} = 3 \text{ T}$

17. $\underline{\hspace{2cm}} \text{ lb} = 6 \text{ T}$

18. $4 \text{ lb} = \underline{\hspace{2cm}} \text{ oz}$

19. $\underline{\hspace{2cm}} \text{ lb} = 96 \text{ oz}$

20. $\underline{\hspace{2cm}} \text{ lb} = 7 \text{ T}$

21. $10,000 \text{ lb} = \underline{\hspace{2cm}} \text{ oz}$

Name _____ Date _____

Problem-Solving Skill: Too Much or Too Little Information

The Golden Gate Bridge has 2 towers that rise 746 feet above the sea.
The length of the bridge is 1.7 miles. The roadway is 220 feet above the sea.
What is the distance from the roadway of the bridge to the top of the tower?

What facts do I need?

- towers are 746 ft above the sea
 - roadway is 220 ft above the sea
- There is more information, but I don't need it.

How can I solve the problem?

Subtract to find the distance from the roadway to the top of a tower. $746 \text{ ft} - 220 \text{ ft}$
The distance from the roadway to the top of a tower is 526 feet

Solve. Use these and other strategies.

Problem-Solving Strategies

• Write an equation

• Guess and Check

• Draw a Picture

• Work Backward

- The suspension cables of the Golden Gate Bridge are 7,650 feet long. How much cable is used altogether in the bridge?

Think: What information do I need?

- New York's Verrazano-Narrows Bridge is 4,260 feet long. The Mackinac Straits Bridge in Michigan has a span of 3,800 feet. The Tacoma Narrows Bridge in Washington is 2,800 feet long. How much longer is the Verrazano-Narrows Bridge than the Tacoma Narrows Bridge?

Think: What information is extra?

- Chicago's Sears Tower is 1,450 feet tall with 110 stories. New York City's World Trade Center One is 1,368 feet tall with 110 stories. How much taller is the Sears Tower than the World Trade Center?

Think: What information is extra?

- Switzerland's St. Gotthard Tunnel is about 10 miles long. The Mt. Blanc Tunnel is about 11 kilometers long. How much longer is the St. Gotthard Tunnel?

Think: What information do I need?

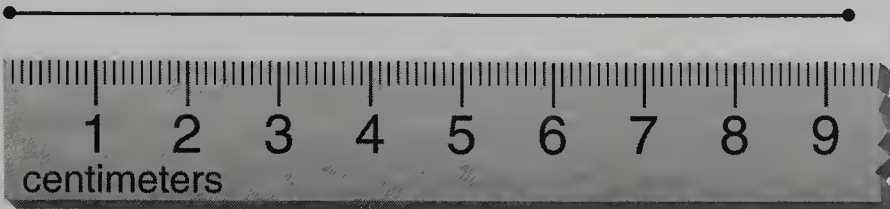
Name _____

Date _____

Centimeter and Millimeter

You can use a centimeter ruler to measure lengths.

How long is the line segment when measured to the nearest centimeter?

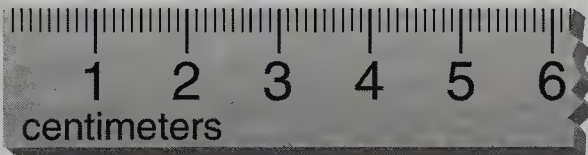


Think: Which centimeter mark is closest to the end of the line segment?
The 9 cm mark.

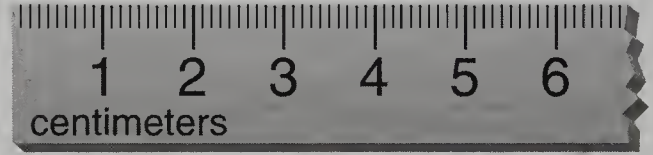
The line segment is 9 cm long when measured to the nearest centimeter.

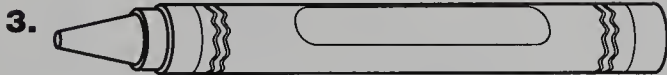
Estimate the length of each line segment or object to the nearest centimeter. Then measure each to the nearest centimeter.

1. _____



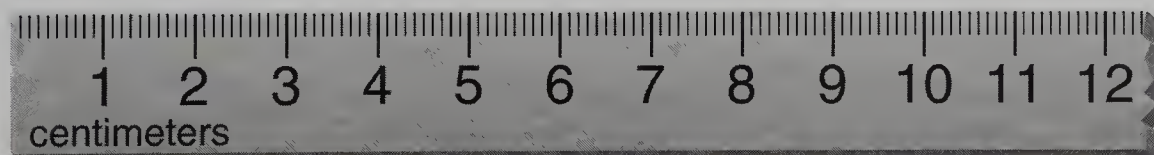
2. _____

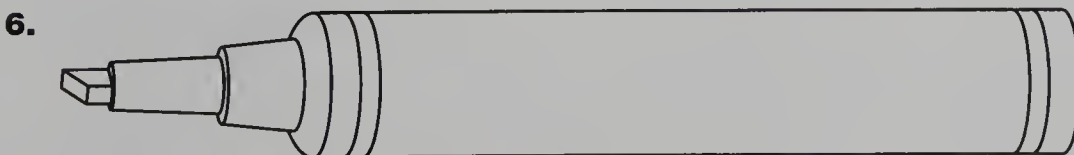






5. _____



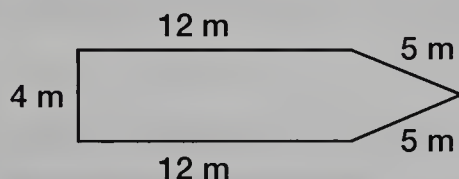


Name _____

Date _____

Perimeter and Metric Units of Length

Find the perimeter of the figure



Solution: **38 m**

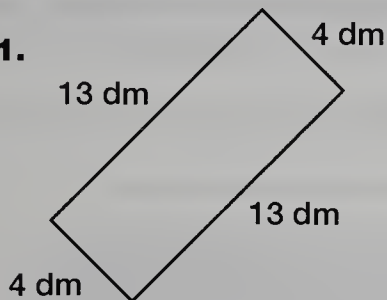
Think: Find the perimeter of a figure by adding up the lengths of all the sides.

The perimeter of this figure is

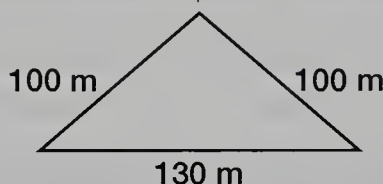
$$12 + 5 + 5 + 12 + 4 = 38$$

Find the perimeter of each figure.

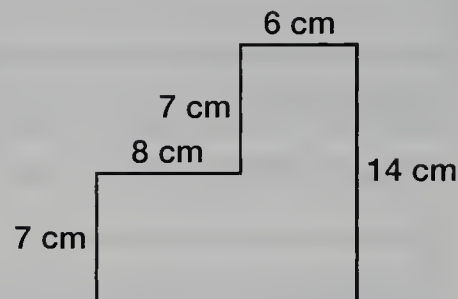
1.



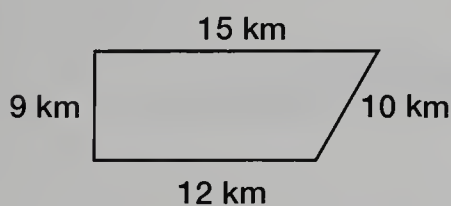
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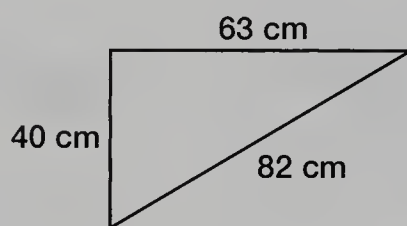
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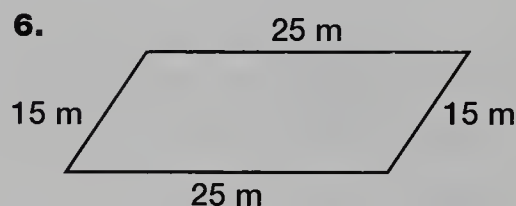
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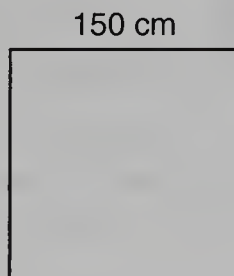
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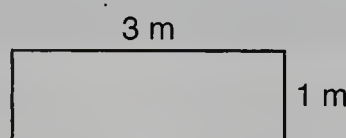
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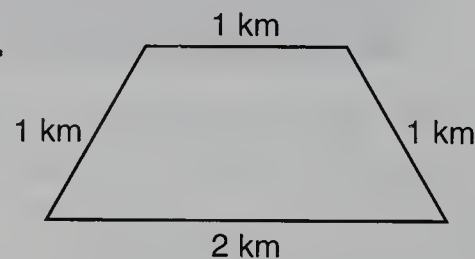
7.



8.



9.



Name _____

Date _____

Metric Units of Capacity and Mass

You can change from one unit of capacity to another and from one unit of mass to another.

How many grams are there in 4 kg?

Remember:

1 liter (L) = 1,000 milliliters (mL)

1 kilogram (kg) = 1,000 grams (g)

Think: To change larger units to smaller units, multiply.

$$4 \times 1,000 = 4,000$$

Solution: There are 4,000 g in 4 kg

Find each missing number.

1. 5,000 g = _____ kg 2. 4,000 mL = _____ L 3. 7 kg = _____ g

4. 8 L = _____ mL 5. _____ g = 7 kg 6. _____ mL = 6 mL

7. _____ kg = 5,000 g 8. 12 L = _____ mL 9. 17,000 g = _____ kg

10. 19 L = _____ mL 11. 22 kg = _____ g 12. 27,000 mL = _____ L

Choose the better estimate of the mass or capacity of each.

13. A cat.
8 gm or 8 kg

14. A glass of water.
20 mL or 20 L

15. A motorcycle.
200 gm or 200 kg

Name _____ Date _____

Problem-Solving Strategy: Make a Table

Making a table may help you organize information to solve a problem.

The Thorton Swim Team is participating in a swim meet. Each age group swims a backstroke, breaststroke, freestyle, and butterfly race, in that order. The 8 to 10 age group goes first. The first event starts at 10:00 A.M. Each event takes 10 minutes. If Todd swims butterfly, when does Todd's event start?

Think: How long will the events prior to Todd's take?
Make a table to find out when Todd swims the butterfly.

Event	Start Time
8-10 backstroke	10:00 A.M.
8-10 breaststroke	10:10 A.M.
8-10 freestyle	10:20 A.M.
8-10 butterfly	10:30 A.M.

Todd's event will start at 10:30 A.M.

Solve.

1. Just before the swim meet begins, the swim coach decides that Todd will also swim in the breaststroke event. When will Todd swim in his first event?

Think: Which event is the breaststroke?

2. In the 11-12 age level, there will be 2 heats in every event. Each heat will last 10 minutes. Jo swims freestyle. The 11-12 age group events start at 10:50 A.M. When will Jo swim if she swims the first freestyle heat?

Think: How can I add to my table to solve this problem?

3. Haley swims butterfly in the 11-12 age level. There will be 2 heats in this event and Haley will swim in the second heat. The 11-12 events start at 10:50 A.M. When will Haley swim?

Think: How can I add to my table to solve this problem?

4. Matthew swims the breaststroke in the 11-12 age level. The events for the 11-12 age group start at 10:50 A.M. He will be in the first heat. When will he swim?

Think: How can I add to my table to solve this problem?

Name _____

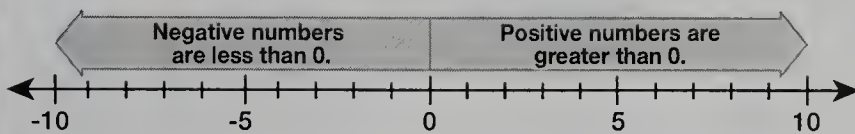
Date _____

Degrees Fahrenheit and Negative Numbers

You can read and use positive and negative temperatures on a Fahrenheit thermometer.

Find the difference between -5°F and 28°F .

You can think of a thermometer as a vertical number line.

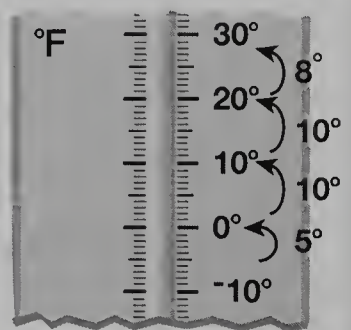


Solution: The difference is 33 degrees.

Think: -5 is negative number, so I can find the difference in two steps.

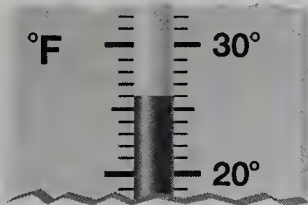
First find the difference between -5 and 0; this is 5.

Then find the difference between 0 and 28; This is 28.

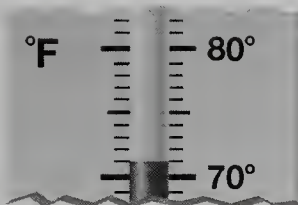


Write each temperature.

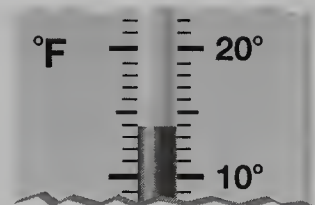
1.



2.



3.



Find the difference between the temperatures.

4. 63°F and 87°F

5. -7°F and 15°F

6. 23°F and 71°F

7. -8°F and 31°F

8. 26°F and 48°F

9. 72°F and 101°F

10. -13°F and 3°F

11. -1°F and 2°F

12. 4°F and 21°F

Name _____

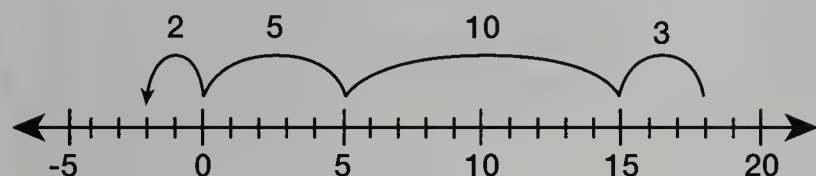
Date _____

Degrees Celsius and Negative Numbers

You can read and use positive and negative temperatures on a Celsius thermometer.

Find the difference between -2°C and 18°C .

You can think of a thermometer as a vertical number line.

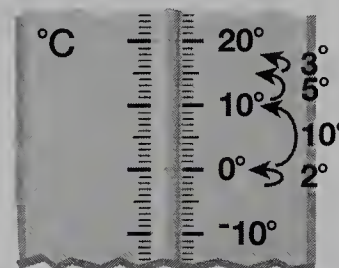


Solution: The difference is $2 + 18 = 20$ degrees.

Think: -2 is negative number, so I can find the difference in two steps.

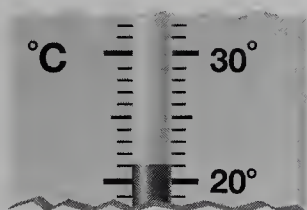
First find the difference between -2 and 0; this is 2.

Then find the difference between 0 and 18; this is 18.

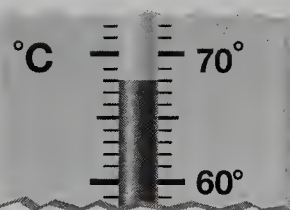


Write each temperature.

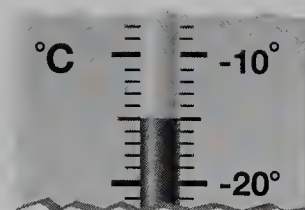
1.



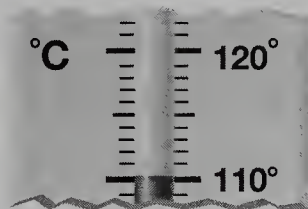
2.



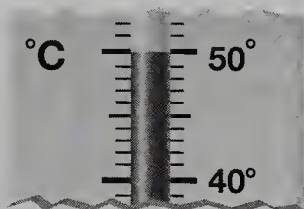
3.



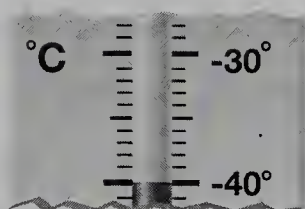
4.



5.



6.



Find the difference between the temperatures.

7. 8°C and 22°C

8. -3°C and 16°C

9. -9°C and -2°C

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Problem-Solving Application: Use Temperature

You can use what you know about temperature to solve problems.

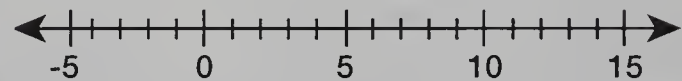


Lois works for the National Weather Service. She keeps track of daily high and low temperatures in her region.

One day the high was 13°F . The low on the same day was -4°F . What is the difference between the temperatures?

The total difference is $4 + 13 = 17$ degrees.

Think of the thermometer as a number line. Count up or down.



Solve.

- Lois noticed that the room temperature was about 68°F . When she went outside to go home that night, she noticed that the temperature was 49°F . How much cooler was it outside than inside?

Think:

What is the difference between the temperatures?

- One morning, Lois recorded a temperature of 38°F . By late afternoon the temperature was 62°F . How much had the temperature risen during those hours?

Think:

Should I count up or down?

- Lois recorded a high temperature of 75°F on a particular day. The high temperature on the same day the previous year had been 94°F . How much warmer was it last year?

Think:

What is the difference between the temperatures?

- Lois recorded a low temperature of -10°F for the day. The high temperature for the day was 39°F . How much had the temperature risen during the day?

Think:

Should I count up or down?

Name _____ Date _____

Represent Fractions

A fraction is a number that describes a part of a whole.

A fraction can describe part of a group.

Sara did seven projects in art class. 3 of the projects were paintings, 2 were sculptures and 2 were sketches. What fraction of her art projects were sculptures?

numerator \rightarrow $\frac{2}{7}$ sculptures
denominator \rightarrow 7 art projects

$\frac{2}{7}$ of the art projects are sculptures.

A fraction can describe part of one object.

Sara has made a large drawing. She divides it into 4 equal sections, and paints one section. What fraction of the drawing has been painted?

numerator \rightarrow $\frac{1}{4}$ section painted
denominator \rightarrow 4 sections total

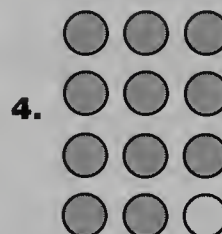
$\frac{1}{4}$ of the drawing is painted.

Write the fractions for the shaded part.

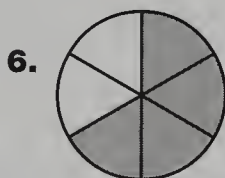










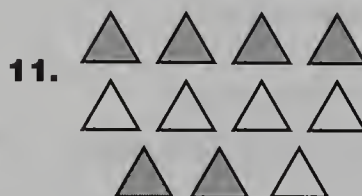


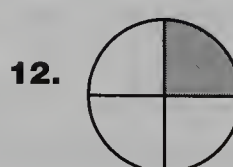












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Fractional Parts of a Number

You can use division and multiplication to find the fractional part of a number.

Alicia had a basket with 16 oatmeal cookies in it. Her friends ate $\frac{3}{4}$ of the cookies. How many cookies did her friends eat?

Find $\frac{3}{4}$ of 16.

Step 1 Divide the total number of cookies by the denominator of the fraction.

$$16 \div 4 = 4$$

Step 2 Now multiply your answer by the numerator of the fraction.

$$4 \times 3 = 12$$

$\frac{3}{4}$ of 16 is 12. Alicia's friends ate 12 cookies.

Find the fractional part of each number.

1. $\frac{6}{7}$ of 14

2. $\frac{7}{8}$ of 24

3. $\frac{5}{6}$ of 18

4. $\frac{1}{2}$ of 4

5. $\frac{2}{10}$ of 40

6. $\frac{3}{7}$ of 28

7. $\frac{1}{7}$ of 7

8. $\frac{4}{10}$ of 20

9. $\frac{8}{8}$ of 16

10. $\frac{1}{10}$ of 90

11. $\frac{5}{7}$ of 28

12. $\frac{2}{5}$ of 100

13. $\frac{2}{6}$ of 36

14. $\frac{5}{9}$ of 45

15. $\frac{9}{10}$ of 10

16. $\frac{2}{12}$ of 12

17. $\frac{2}{3}$ of 18

18. $\frac{1}{4}$ of 16

19. $\frac{3}{8}$ of 64

20. $\frac{3}{5}$ of 15

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Modeling Equivalent Fractions

You can use fraction strips to name equivalent fractions.

Draw fraction strips to find equivalent fractions for $\frac{2}{3}$.

Draw $\frac{1}{6}$ fraction strips to fit under the $\frac{2}{3}$ strips.

How many did you use?

What equivalent fraction describes the same amount as $\frac{2}{3}$?

$\frac{4}{6}$ is equivalent to $\frac{2}{3}$.

$\frac{1}{3}$	$\frac{1}{3}$	$\frac{1}{3}$
---------------	---------------	---------------

$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$	$\frac{1}{6}$
---------------	---------------	---------------	---------------	---------------	---------------

1. Draw fraction strips to find fractions equivalent to $\frac{2}{10}$.
Complete the table.

Fractions Equivalent to $\frac{2}{10}$		
Fraction Strip	How many?	Equivalent Fraction
$\frac{1}{5}$		
$\frac{1}{20}$		

2. Draw fraction strips to find fractions equivalent to $\frac{4}{5}$.
Complete the table.

Fractions Equivalent to $\frac{4}{5}$		
Fraction Strip	How many?	Equivalent Fraction
$\frac{1}{10}$		
$\frac{1}{15}$		

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Equivalent Fractions

There are different ways to find equivalent fractions.

Jared read $\frac{6}{8}$ of a book. What are two equivalent fractions for $\frac{6}{8}$?

You can multiply.

Multiply the numerator and denominator by the same number.

$$\frac{6}{8} = \frac{6 \times 3}{8 \times 3} = \frac{18}{24}$$

$\frac{6}{8}$ and $\frac{18}{24}$ are equivalent fractions.

$\frac{18}{24}$ and $\frac{3}{4}$ are both equivalent fractions for $\frac{6}{8}$.

You can divide.

Divide the numerator and denominator by the same number.

$$\frac{6}{8} = \frac{6 \div 2}{8 \div 2} = \frac{3}{4}$$

$\frac{6}{8}$ and $\frac{3}{4}$ are equivalent fractions.

Multiply or divide to find the equivalent fraction.

1. $\frac{6}{9} = \frac{6 \div 3}{9 \div 3} = \underline{\hspace{2cm}}$

2. $\frac{4}{5} = \frac{4 \times 2}{5 \times 2} = \underline{\hspace{2cm}}$

3. $\frac{1}{3} = \frac{1 \times 5}{3 \times 5} = \underline{\hspace{2cm}}$

4. $\frac{10}{15} = \frac{10 \div 5}{15 \div 5} = \underline{\hspace{2cm}}$

5. $\frac{3}{10} = \frac{3 \times 2}{10 \times 2} = \underline{\hspace{2cm}}$

6. $\frac{4}{13} = \frac{4 \times 3}{13 \times 3} = \underline{\hspace{2cm}}$

7. $\frac{7}{9} = \frac{7 \times 3}{9 \times 3} = \underline{\hspace{2cm}}$

8. $\frac{10}{20} = \frac{10 \div 10}{20 \div 10} = \underline{\hspace{2cm}}$

9. $\frac{9}{18} = \frac{9 \div 9}{18 \div 9} = \underline{\hspace{2cm}}$

10. $\frac{4}{32} = \frac{4 \div 4}{32 \div 4} = \underline{\hspace{2cm}}$

11. $\frac{10}{12} = \frac{10 \div 2}{12 \div 2} = \underline{\hspace{2cm}}$

12. $\frac{5}{35} = \frac{5 \div 5}{35 \div 5} = \underline{\hspace{2cm}}$

Complete. Find the value of each \blacksquare .

13. $\frac{3}{5} = \frac{3 \times 4}{5 \times 4} = \frac{\blacksquare}{\blacksquare}$

14. $\frac{15}{20} = \frac{15 \div 5}{20 \div 5} = \frac{\blacksquare}{\blacksquare}$

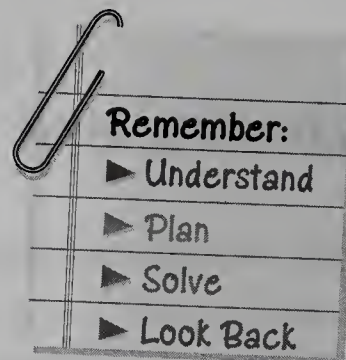
15. $\frac{1}{3} = \frac{1 \times 3}{3 \times 3} = \frac{\blacksquare}{\blacksquare}$

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Problem-Solving Strategy: Draw a Picture

Sometimes you can draw a picture to help you solve a problem.



Problem At the Lincoln School Fair, $\frac{1}{3}$ of the booths were for bake sales, $\frac{1}{6}$ were for crafts, and 9 were for games. How many booths were there in all?

Think: Draw 6 equal parts because $\frac{1}{3}$ and $\frac{1}{6}$ can both be shown as sixths

Bake Sales
Bake Sales
Crafts
Games
Games
Games

$$= \frac{1}{3} \text{ or } \frac{2}{6}$$

$$= \frac{1}{6}$$

$$= 9$$

Since $9 = \frac{1}{2}$ of the booths, there will be 18 booths in all.

Use the Draw a Picture strategy to solve each problem.

1. At the fair, $\frac{1}{4}$ of the student displays were science projects, $\frac{1}{8}$ were writing projects, and 20 were crafts. How many student displays were there?

Think: Into how many equal parts should the picture be divided?

2. Of the students who performed music at the fair, $\frac{3}{4}$ sang, $\frac{1}{8}$ played the trumpet, and 6 played the piano. How many students performed music?

Think: Into how many equal parts should the picture be divided?

3. Of the bake sale items, $\frac{1}{12}$ were pies, $\frac{1}{3}$ were cakes, and 35 were cupcakes. How many bake sale items were there altogether?

Think: Into how many equal parts should the picture be divided?

4. Of the students who attended, $\frac{1}{5}$ liked the crafts the best, $\frac{3}{10}$ liked the displays best, and 100 liked the games best. How many students attended?

Think: Into how many equal parts should the picture be divided?

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Compare and Order Fractions

If two fractions have unlike denominators, you should find equivalent fractions before comparing them.

Which is greater, $\frac{2}{3}$, $\frac{3}{5}$, or $\frac{1}{2}$?

Find equivalent fractions.

$$\frac{2}{3} = \frac{20}{30}$$

$$\frac{3}{5} = \frac{18}{30}$$

$$\frac{1}{2} = \frac{15}{30}$$

Compare the numerators.

$$20 > 18 > 15$$

$$\text{So } \frac{20}{30} > \frac{18}{30} > \frac{15}{30}$$

The order of the fractions is $\frac{2}{3} > \frac{3}{5} > \frac{1}{2}$.

Compare. Write $>$, $<$ or $=$ for each \bigcirc .

1. $\frac{3}{4} \bigcirc \frac{1}{8}$

2. $\frac{6}{7} \bigcirc \frac{1}{9}$

3. $\frac{5}{10} \bigcirc \frac{4}{12}$

4. $\frac{1}{7} \bigcirc \frac{2}{14}$

5. $\frac{3}{8} \bigcirc \frac{2}{6}$

6. $\frac{6}{10} \bigcirc \frac{1}{5}$

7. $\frac{2}{7} \bigcirc \frac{3}{6}$

8. $\frac{3}{7} \bigcirc \frac{9}{21}$

Order each group of fractions from greatest to least.

9. $\frac{3}{5}$, $\frac{1}{5}$, $\frac{1}{6}$

10. $\frac{3}{21}$, $\frac{7}{21}$, $\frac{2}{7}$

11. $\frac{12}{25}$, $\frac{5}{25}$, $\frac{2}{5}$

12. $\frac{2}{4}$, $\frac{5}{8}$, $\frac{7}{8}$

13. $\frac{3}{6}$, $\frac{5}{6}$, $\frac{1}{3}$

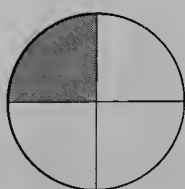
14. $\frac{4}{8}$, $\frac{7}{8}$, $\frac{1}{4}$

15. $\frac{9}{21}$, $\frac{2}{21}$, $\frac{2}{3}$

16. $\frac{5}{9}$, $\frac{6}{9}$, $\frac{1}{18}$

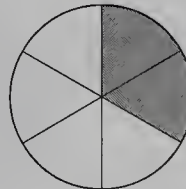
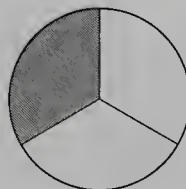
Compare. Write $>$, $<$ or $=$ for each \bigcirc .

17.



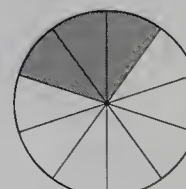
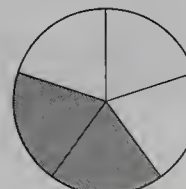
$$\frac{1}{4} \bigcirc \frac{3}{8}$$

18.



$$\frac{1}{3} \bigcirc \frac{2}{6}$$

19.



$$\frac{2}{5} \bigcirc \frac{3}{10}$$

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Write Mixed Numbers

There are different ways to change an improper fraction to a mixed number.

Write $\frac{17}{4}$ as a mixed number

You can draw a picture.



$$1\frac{4}{4} + 1\frac{4}{4} + 1\frac{4}{4} + \frac{1}{4} = 4\frac{1}{4}$$

The picture shows that $\frac{17}{4}$ equals $4\frac{1}{4}$.

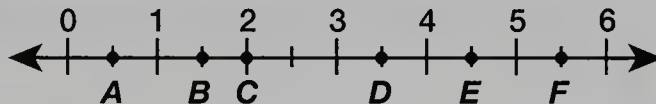
You can divide the numerator by the denominator.

The fraction bar stands for "divided by." So $\frac{17}{4}$ means "17 divided by 4."

$$\begin{array}{r} 4 \leftarrow \text{number of wholes} \\ 4 \overline{)17} \\ \underline{-16} \\ 1 \leftarrow \text{number of fourths} \end{array}$$

So, $\frac{17}{4}$ equals $4\frac{1}{4}$.

Write the letter from the number line that matches each fraction.



1. $\frac{3}{2}$

2. $\frac{9}{2}$

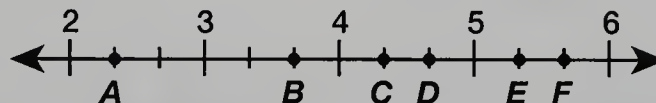
3. $\frac{11}{2}$

4. $\frac{1}{2}$

5. $\frac{4}{2}$

6. $\frac{7}{2}$

Write an improper fraction and a mixed number for each.



7. A

8. C

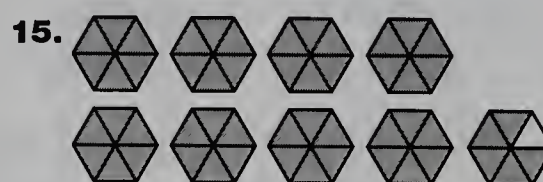
9. E

10. F

11. D

12. B

Write an improper fraction and a mixed number for the shaded parts.



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Problem-Solving Skill: Choose How to Write the Quotient

When you solve problems by dividing, you need to decide how to write the quotient in order to answer a problem.

Sometimes you need to write the quotient with a remainder. Dara has \$7 to buy T-shirts. Each T-shirt costs \$3. How many T-shirts can she buy? How much money will she have left?

$$\begin{array}{r} 2 \text{ R}1 \\ 3 \overline{)7} \\ \underline{-6} \\ 1 \end{array}$$

She can buy 2 T-shirts. She will have \$1 left.

Sometimes you need to write the quotient as a mixed number. Steve wanted to share 10 cookies with himself and 3 friends. If they shared the cookies equally, how many cookies would they each get?

$$10 \div 4 = 2\frac{1}{2}$$

Write the quotient as a mixed number when you are dividing something like cookies, which can be cut into pieces. Each person would get $2\frac{1}{2}$ cookies.

Solve each problem. Explain why your answer is reasonable.

- Steve uses 15 bags of chocolate chips to bake 10 batches of cookies. How many bags of chocolate chips go into each batch of cookies?

Think:

What does the remainder represent?

- Steve copied his cookie recipe for 7 of his friends. He could fit three copies of the recipe on each sheet of paper. How many sheets of paper would he need?

Think:

What does the remainder represent?

- Steve can fit 20 cookies on a plate. Any leftover cookies get stored in a bag. Steve had 90 cookies. How many plates could Steve fill with cookies? How many would go into bags?

Think:

What does the remainder represent?

- Steve mailed some cookies to his friends. Each box must hold exactly 50 cookies. How many boxes can he ship if he has 130 cookies?

Think:

What does the remainder represent?

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Add With Like Denominators

You can add fractions and mixed numbers with like denominators.

When fractions have the same denominator they can be added by adding the numerators.

Candice practiced piano $\frac{1}{3}$ of an hour on Tuesday and $\frac{1}{3}$ of an hour on Wednesday. How much did she practice piano altogether?

$$\frac{1}{3} + \frac{1}{3} = \frac{2}{3}$$

Candice practiced for $\frac{2}{3}$ of an hour altogether on Tuesday and Wednesday.

Mixed numbers can be added by adding the whole numbers, then adding the fractions.

If Candice practiced $1\frac{1}{3}$ hours on Thursday and $1\frac{1}{3}$ hours on Friday, how long did she practice altogether on Thursday and Friday?

$$1\frac{1}{3} + 1\frac{1}{3} = 2\frac{2}{3}$$

Candice practiced $2\frac{2}{3}$ hours altogether on Thursday and Friday.

Find each sum in simplest form.

1. $\frac{1}{8} + \frac{5}{8}$

2. $\frac{3}{5} + \frac{1}{5}$

3. $\frac{2}{9} + \frac{2}{9}$

4. $\frac{3}{11} + \frac{5}{11}$

5. $3\frac{1}{4} + 5\frac{2}{4}$

6. $4\frac{5}{10} + 4\frac{3}{10}$

7. $2\frac{1}{7} + 9\frac{2}{7}$

8. $2\frac{5}{8} + 1\frac{1}{8}$

9. $4\frac{1}{9} + 6\frac{3}{9}$

10. $3\frac{8}{12} + 3\frac{3}{12}$

11. $4\frac{1}{3} + 15\frac{1}{3}$

12. $6\frac{7}{15} + 2\frac{3}{15}$

13. $5\frac{2}{100} + 3\frac{60}{100}$

14. $3\frac{4}{7} + 2\frac{2}{7}$

15. $2\frac{9}{18} + 1\frac{1}{18}$

16. $3\frac{1}{14} + 1\frac{1}{14}$

17. $\frac{4}{9} + \frac{1}{9}$

18. $3\frac{1}{3} + 2\frac{1}{3}$

19. $\frac{2}{15} + \frac{3}{15}$

20. $\frac{2}{10} + \frac{5}{10}$

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Subtract With Like Denominators

You can subtract fractions and mixed numbers with like denominators.

Robert brought $3\frac{3}{4}$ plates of cookies to the school bake sale. Jennifer brought $1\frac{1}{4}$ plates of cookies. How many more plates of cookies did Robert bring than Jennifer?

Find $3\frac{3}{4} - 1\frac{1}{4}$.

$$3\frac{3}{4}$$

$$-1\frac{1}{4}$$

$$2\frac{2}{4} \text{ or, in simplest form, } 2\frac{1}{2}$$

When fractions have the same denominators, they can be subtracted by subtracting the numerators.

Robert brought $2\frac{1}{2}$ plates more cookies than Jennifer.

Write each difference in simplest form.

1. $2\frac{2}{6} - 1\frac{1}{6}$

2. $3\frac{3}{7} - 1\frac{1}{7}$

3. $\frac{7}{10} - \frac{6}{10}$

4. $\frac{5}{8} - \frac{1}{8}$

5. $\frac{4}{7} - \frac{1}{7}$

6. $8\frac{7}{10} - 3\frac{2}{10}$

7. $7\frac{17}{18} - 2\frac{16}{18}$

8. $7\frac{2}{5} - 1\frac{1}{5}$

9. $\frac{6}{8} - \frac{2}{8}$

10. $9\frac{10}{12} - 1\frac{2}{12}$

11. $\frac{7}{8} - \frac{6}{8}$

12. $12\frac{9}{15} - 8\frac{1}{15}$

13. $\frac{4}{9} - \frac{1}{9}$

14. $3\frac{2}{6} - 1\frac{1}{6}$

15. $\frac{12}{13} - \frac{2}{13}$

16. $\frac{8}{12} - \frac{2}{12}$

17. $12\frac{4}{9} - 10\frac{1}{9}$

18. $7\frac{6}{8} - 2\frac{1}{8}$

19. $\frac{12}{14} - \frac{1}{14}$

20. $2\frac{3}{4} - 1\frac{1}{4}$

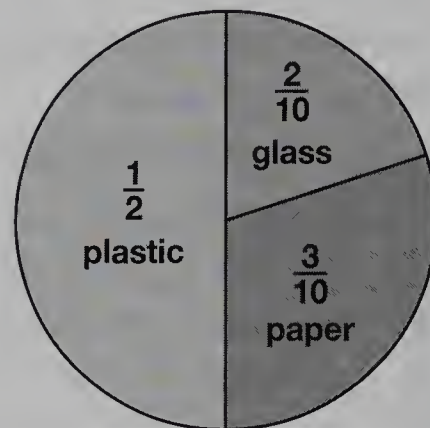
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Problem-Solving Application: Use Fractions

You can use fractions and a circle graph to show a total amount divided into parts.

Fourth grade students are surveying the trash at their school to find ways to reduce it. They made a graph of the waste in the lunch room trash cans. There were 100 pieces of trash. How many more pieces of plastic than paper waste were there?



Look at the graph.

What part of the circle is plastic? $\frac{1}{2}$

$\frac{1}{2}$ of 100 = 50 pieces plastic

What part of the circle is paper waste? $\frac{3}{10}$

$\frac{3}{10}$ of 100 = 30 pieces paper waste

Solve: $50 - 30 = 20$

There were 20 more pieces of plastic than paper waste.

Solve.

1. The student surveyors asked other students to reduce their waste. On the next day's count, there were 40 pieces of plastic, but the graph stayed the same. How many pieces of glass were in the trash that day?

Think:

What part of the circle is glass waste?

3. Look at the original circle graph. If there were 250 pieces of trash in all, how many pieces of glass would there be?

2. The surveyors asked students to recycle their glass waste instead of throwing it into the trash. The circle graph would now have $\frac{5}{8}$ food waste. What part of the circle graph would be paper trash?

Think:

What part of the circle is paper trash?

4. Look at the original circle graph. How many more pieces of paper waste than glass waste were there?

Think:

What part of the circle is glass waste?

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Fractions and Decimals

Use grid paper to learn how fractions and decimals are related.

Mary has 100 marbles. She says that $\frac{4}{10}$ are blue marbles.

She could also say that $\frac{40}{100}$ are blue marbles.

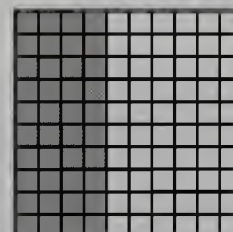
Both numbers can be written as fractions and decimals.

Step 1 Draw a 10×10 square. Divide it into 10 equal parts. Color 4 of the parts to show $\frac{4}{10}$.



Fraction	Decimal
$\frac{4}{10}$	0.4

Step 2 Draw another 10×10 square. Divide it into 100 equal parts. Color 40 of the parts to show $\frac{40}{100}$.



Fraction	Decimal
$\frac{40}{100}$	0.40

Use grid paper. Draw a model to show each fraction.

Then write each fraction as a decimal.

1. $\frac{6}{10}$

2. $\frac{4}{100}$

3. $\frac{8}{10}$

4. $\frac{50}{100}$

5. $\frac{3}{10}$

Use grid paper. Draw a model to show each decimal.

Then write each decimal as a fraction.

6. 0.2

7. 0.59

8. 0.5

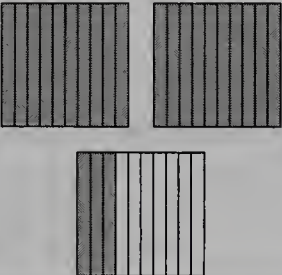
9. 0.10

10. 0.6

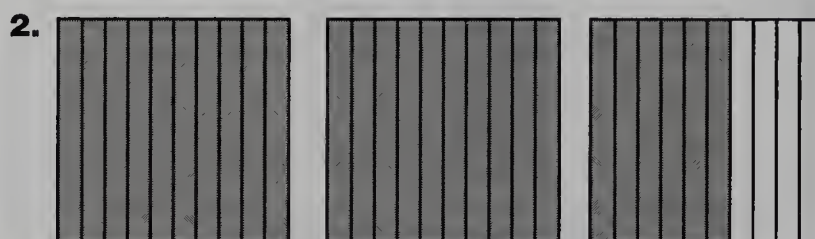
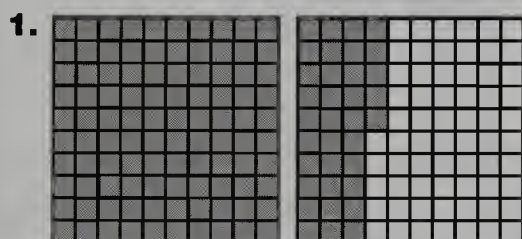
Name _____ Date _____

Mixed Numbers and Decimals

You can read, write, and model amounts greater than 1.

Use models	Write a mixed number.	Write a decimal.						
	$2\frac{3}{10}$	<table border="1"> <tr> <th>Ones</th><th></th><th>Tenths</th></tr> <tr> <td>2</td><td>.</td><td>3</td></tr> </table> <p>Write: 2.3 Read: two and three tenths</p>	Ones		Tenths	2	.	3
Ones		Tenths						
2	.	3						

Write a mixed number and a decimal for the shaded part.



Write each mixed number as a decimal.

3. $6\frac{4}{10}$

4. $15\frac{5}{10}$

5. $22\frac{7}{10}$

6. $3\frac{64}{100}$

7. $46\frac{2}{10}$

8. $38\frac{74}{100}$

Write a decimal for each amount.

9. eight tenths

10. sixty-five hundredths

11. three and forty-nine hundredths

12. four and one tenth

13. fifty-two hundredths

14. ten and nine tenths

Name _____ Date _____

Fractions and Decimal Equivalents

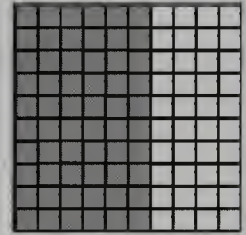
A fraction and a decimal can name the same amount.

Different Ways to Show Equivalent Amounts

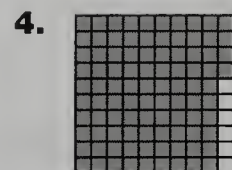
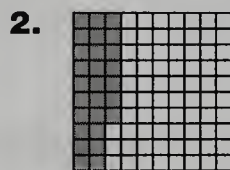
$$\frac{3}{5} = \frac{6}{10} \text{ or } 0.6$$

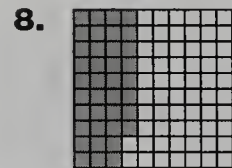
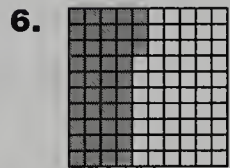


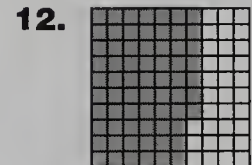
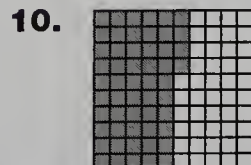
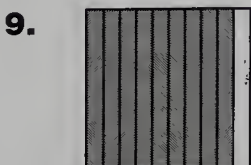
$$\frac{3}{5} = \frac{6}{10} = \frac{60}{100} \text{ or } 0.60$$



Write a fraction and a decimal for the shaded part.







Name _____ Date _____

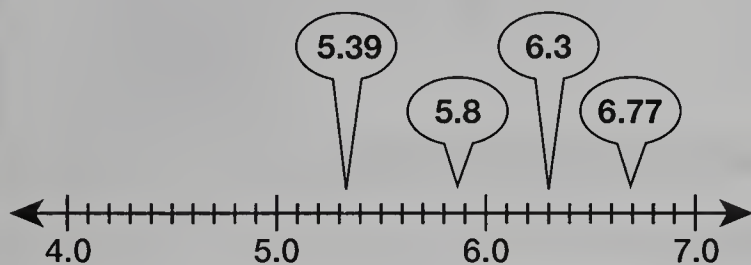
Compare and Order Decimals

You can compare and order decimals.

Different Ways to Compare and Order Decimals

Compare and order 6.3 5.8 6.77 5.39.

You can use a number line.



You can use a place value chart.

Ones		Tenths
5	.	39
5	.	8
6	.	3
6	.	77

$$5.39 < 5.8 < 6.3 < 6.77$$

Compare with $<$, $>$ or $=$ for each \bigcirc .

1. $11.6 \bigcirc 11.3$

2. $19.2 \bigcirc 12.9$

3. $17.6 \bigcirc 16.7$

4. $38.9 \bigcirc 83.9$

5. $16.26 \bigcirc 16.62$

6. $29.71 \bigcirc 27.91$

Order the numbers from least to greatest.

7. 4.2 4.9 3.6 2.5

8. 6.8 5.2 6.6 5.8

9. 7.7 8.6 6.6 9.9

10. 3.13 3.33 3.83 3.31

11. 6.56 5.65 55.5 56.56

12. 4.08 4.80 4.18 4.84

Name _____

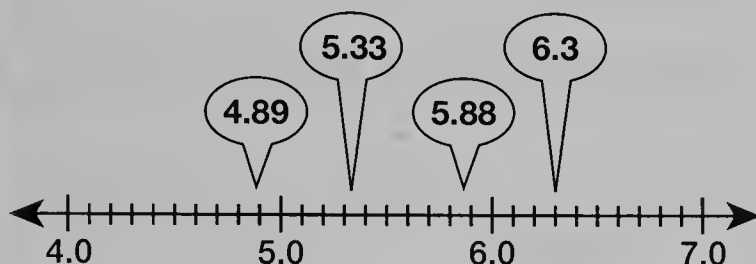
Date _____

Compare and Order Fractions, Mixed Numbers, and Decimals

Different Ways to Compare and Order Numbers

Order the numbers from least to greatest: 5.33, 4.89, $6\frac{3}{10}$, and $5\frac{88}{100}$.

You can use a number line.



You can use a place-value chart.

- Change the fractions to decimals.
- Write the decimals in hundredths.
- Compare

	ones		tenths	hundredths
4.89	4	.	8	9
5.33	5	.	3	3
$5\frac{88}{100}$	5	.	8	8
$6\frac{3}{10}$	6	.	3	0

The numbers from least to greatest are 4.89, 5.33, $5\frac{88}{100}$ and $6\frac{3}{10}$.

Order the numbers from least to greatest.

1. 7.2 $7\frac{4}{10}$ 7.33 $7\frac{3}{100}$

2. 5.54 $5\frac{4}{10}$ $5\frac{50}{100}$ 5.45

3. $8\frac{8}{100}$ 8.88 $8\frac{8}{10}$ 8.18

4. $\frac{3}{10}$ 3.3 $\frac{33}{100}$ 3.33

5. 7.4 $7\frac{44}{100}$ 7.74 $7\frac{4}{100}$

6. 6.2 $6\frac{6}{10}$ 6.66 $6\frac{26}{100}$

7. 9.6 $9\frac{6}{100}$ 9.61 $9\frac{66}{100}$

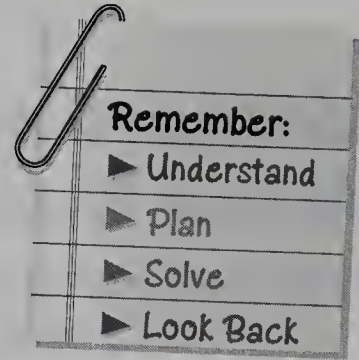
8. 2.8 $2\frac{8}{100}$ 2.89 $2\frac{98}{100}$

9. 5.3 $5\frac{1}{10}$ 5.15 $5\frac{51}{100}$

Name _____

Date _____

Problem-Solving Strategy: Find a Pattern



Patterns can sometimes help you solve problem.

One pie costs \$4.50. You can buy two pies for \$6.75. Three pies cost \$9.00. How much will five pies cost?

What is the question?

How much will five pies cost?

What do you know?

- 1 pie costs \$4.50.
- 2 pies cost \$6.75.
- 3 pies cost \$9.00.

Solve using Find a Pattern strategy.

1	2	3
\$4.50	\$6.75	\$9.00
	+\$2.25	+\$2.25

The pattern is + \$2.25.

Add \$2.25 for each extra pie.

Five pies cost \$13.50.

Use the Find a Pattern strategy to solve each problem.

1. Betty is knitting a scarf. There are 9 red rows, 6 blue rows, and 3 green rows. If she starts with red, then goes to blue and green, what color will the 24th row be?

Think:

How can I use the pattern to find the answer?

2. One batch of cookies takes 45 minutes to make. Two batches take 1 hour 10 minutes to make. Three batches take 1 hour 35 minutes to make. How long will it take to make 5 batches?

Think:

What is the pattern for the preparation time?

3. One yard of ribbon costs \$2.00. The next yard costs \$1.75. A third yard costs \$1.50. If the pattern continues, how much will the sixth yard of ribbon cost?

Think:

What is the difference between each yard and the next?

4. The cost for 1 balloon is \$0.30, the cost for 2 balloons is \$0.45, and the cost for 3 balloons is \$0.60. If the pattern continues, what is the cost of 9 balloons?

Think:

How does the cost change each time a balloon is added?

Name _____

Date _____

Add and Subtract Decimals

Adding and subtracting decimals is like adding and subtracting whole numbers.

$$9.4 + 7.64 =$$

Step 1 Line up the decimal points. Add as you would with whole numbers.

$$\begin{array}{r} 9.40 \\ + 7.64 \\ \hline \end{array}$$

Place a zero in the hundredths place.

Step 2 Write the decimal point in your answer.

$$\begin{array}{r} 9.40 \\ + 7.64 \\ \hline 17.04 \\ \uparrow \\ \text{decimal point} \end{array}$$

Step 3 Estimate to check. Round both numbers and add.

$$\begin{array}{r} 9.40 \longrightarrow 9 \\ 7.64 \longrightarrow 8 \\ \hline 17 \\ 17.04 \text{ is close to } 17. \end{array}$$

Add or subtract.

1. $\begin{array}{r} 7.81 \\ + 9.20 \\ \hline \end{array}$

2. $\begin{array}{r} 4.9 \\ + 8.7 \\ \hline \end{array}$

3. $\begin{array}{r} 37.3 \\ + 66.4 \\ \hline \end{array}$

4. $\begin{array}{r} 5.48 \\ + 9.35 \\ \hline \end{array}$

5. $7.4 - 2.2$

6. $10.3 + 4.5$

7. $6.32 - 4.61$

8. $44.9 + 15.6$

9. $\begin{array}{r} 47.38 \\ - 12.45 \\ \hline \end{array}$

10. $\begin{array}{r} 74.65 \\ + 83.36 \\ \hline \end{array}$

11. $\begin{array}{r} 94.32 \\ - 75.15 \\ \hline \end{array}$

12. $\begin{array}{r} 19.94 \\ + 18.33 \\ \hline \end{array}$

13. $12.7 + 18.9$

14. $9.2 - 5.5$

15. $42.42 + 83.23$

16. $76.83 - 43.97$

17. $\begin{array}{r} 39.95 \\ + 70.77 \\ \hline \end{array}$

18. $\begin{array}{r} 38.39 \\ - 27.65 \\ \hline \end{array}$

19. $\begin{array}{r} 36.36 \\ + 44.44 \\ \hline \end{array}$

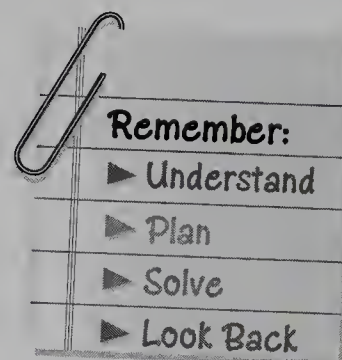
20. $\begin{array}{r} 45.98 \\ - 23.10 \\ \hline \end{array}$

Name _____

Date _____

Problem-Solving Application: Use Decimals

You can add or subtract decimals to solve problems.



Nick rides his bike to school. If he travels on Green Street, the trip is 1.2 miles long. If he takes Bay Street, the trip is 1.5 miles long. If Nick takes Green Street on Monday and Bay Street on Tuesday, how far will he ride altogether?

Understand

What is the question?
How far will
Nick ride?

What do you know?
Distances:
1.2 Green Street
1.5 Bay Street

Plan

How can you find the
answer?

You need to
add distance
for Monday
and Tuesday.

Solve

1.2 miles (Monday)
+1.5 miles (Tuesday)
2.7 miles

Look Back

Look back at your
problem.

Round the numbers
and estimate the
answer. $1 + 2 = 3$

Is your answer
reasonable?
2.7 is close to 3.

1. Samantha buys a sweater for \$18.78.
Then she buys a blouse for \$17.39.
What is her total cost?

Think: What operation should I use?

2. The Jones family traveled 118.5 miles to
the shore. Then they drove 26.8 miles
to Newtown. How many miles did they
drive in all?

Think: What operation should I use?

3. Natalie threw the discus 4.92 meters.
Her second throw was 5.16 meters.
What was the difference between
her first and second throws?

Think: What operation should I use?

4. Mike is making a banner out of ribbon.
He used ribbon of lengths 13.5 inches
and 24.21 inches. How much ribbon
did he use altogether?

Think: What operation should I use?

Name _____

Date _____

Round Decimals

You can use rules or a number line to round decimals.

Find the nearest whole number to 16.62.

Step 1 What place will you round to?

16.62

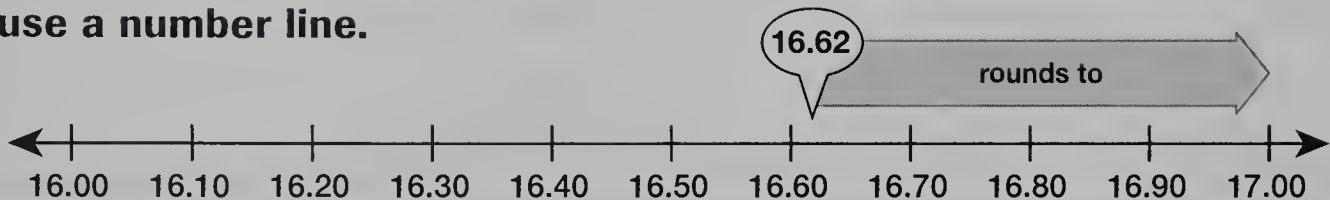
Step 2 What digit is to the right of the rounding place?

16.62

Step 3 Is it greater or less than 5?

- $6 > 5$.
- Round 16.62 to 17.

Or use a number line.



Round each decimal to the nearest whole number.

1. 87.3

2. 46.8

3. 32.5

4. 78.4

5. 67.9

6. 36.8

7. 91.1

8. 28.8

9. 64.4

10. 18.3

11. 14.09

12. 47.84

13. 22.22

14. 84.84

15. 93.47

Round each decimal to the nearest tenth.

16. 6.41

17. 9.45

18. 8.87

19. 2.41

20. 4.76

21. 5.47

22. 6.89

23. 73.19

24. 22.53

25. 94.41

26. 37.74

27. 83.39

28. 28.88

29. 67.94

30. 86.68

Name _____

Date _____

Estimate Decimal Sums and Differences

You can use rounding to estimate sums and differences.

On Highway 1 there are 4 exits. They are 1.6 miles, 4.9 miles, 5.7 miles, and 9.3 miles. On Route 6, there are 3 exits. They are 10.2 miles, 7.1 miles, and 3.6 miles. Estimate which way will be shorter.

Step 1 Estimate the length of each route.

Highway 1

$$1.6 = 2$$

$$4.9 = 5$$

$$5.7 = 6$$

$$9.3 = 9$$

22 miles

Route 6

$$10.2 = 10$$

$$7.1 = 7$$

$$3.6 = 4$$

21 miles

Step 2 Compare the two estimates.

$$21 \text{ miles} < 22 \text{ miles}$$

Solution:

Route 6 is shorter.

Estimate each sum or difference by rounding each decimal to the nearest whole number. Then add or subtract.

$$\begin{array}{r} 1. \quad 7.9 \\ 8.4 \\ +6.1 \\ \hline \end{array}$$

$$\begin{array}{r} 2. \quad 3.9 \\ 8.4 \\ +9.3 \\ \hline \end{array}$$

$$\begin{array}{r} 3. \quad 37.6 \\ -24.8 \\ \hline \end{array}$$

$$\begin{array}{r} 4. \quad 62.43 \\ +89.73 \\ \hline \end{array}$$

$$\begin{array}{r} 5. \quad \$46.39 \\ -27.09 \\ \hline \end{array}$$

$$\begin{array}{r} 6. \quad 3.8 \\ -1.9 \\ \hline \end{array}$$

$$\begin{array}{r} 7. \quad \$37.51 \\ +45.53 \\ \hline \end{array}$$

$$\begin{array}{r} 8. \quad 65.73 \\ -48.35 \\ \hline \end{array}$$

$$\begin{array}{r} 9. \quad 74.47 \\ +52.28 \\ \hline \end{array}$$

$$\begin{array}{r} 10. \quad 57.66 \\ -19.91 \\ \hline \end{array}$$

$$\begin{array}{r} 11. \quad \$64.39 \\ +36.57 \\ \hline \end{array}$$

$$\begin{array}{r} 12. \quad 86.96 \\ -48.74 \\ \hline \end{array}$$

$$\begin{array}{r} 13. \quad 37.37 \\ +28.82 \\ \hline \end{array}$$

$$\begin{array}{r} 14. \quad \$54.72 \\ +87.79 \\ \hline \end{array}$$

$$\begin{array}{r} 15. \quad 30.94 \\ +69.18 \\ \hline \end{array}$$

Name _____

Date _____

Problem-Solving Skill: Choose a Computation Method

You can decide which method to use to solve a problem.

Sometimes you can use mental math.

$$6.7 + 3.3 = 10.0$$

Sometimes you only need an estimate.

About how much is 97.6 and 33.4?

$$98 + 33 = 131$$

Sometimes you will want to use paper and pencil.

Sam paid \$5.58 for a game. Ben paid \$3.49 for the same game. How much more did Sam pay than Ben?

$$\begin{array}{r} \$5.58 \\ -\$3.49 \\ \hline \$1.09 \end{array}$$

Decide which method to use and then solve each problem.

1. Fran earned \$5.30 delivering newspapers. She earned \$12.35 baby-sitting. She needs \$18.50 to buy a book. Does she have enough money?

Think:

Is an estimate enough or is an exact answer needed?

2. Leanne earned \$14 baby-sitting. Bill earned \$13 baby-sitting. Wendy earned \$18 baby-sitting. How much did they earn together?

Think:

Are the amounts easy to add without a pencil and paper?

3. Grape juice is on sale at 9 cans for \$2.50. How much will 18 cans cost?

Think:

Are the amounts easy to add without a pencil and paper?

4. Jenny had \$20. She bought a hairbrush for \$3.92, shampoo for \$8.76, barrettes for \$6.63, and a comb for \$1.56. Did she have enough money to pay for everything?

Think:

Is an estimate enough or is an exact answer needed?

Name _____

Date _____

Collect and Organize Data

A survey is a way to collect information. When you ask a question and record the answers, you are taking a survey.

A written survey may look like this:

What Is Your Favorite Fruit?	
Name	Fruit
Ann	Apple
Ben	Apple
Courtney	Orange
Mike	Banana
Alexis	Apple
Emily	Orange

A tally chart is a way to show the information, or data, you have collected.

The tally chart for this information would look like this:

What Is Your Favorite Fruit?		
Fruit	Tally	Number
Apple		3
Orange		2
Banana		1

Use the list on the right to make a tally chart.

What Is Your Favorite Vegetable?	
Name	Vegetable
Ann	Broccoli
Ben	Green Beans
Courtney	Carrots
Mike	Carrots
Alexis	Broccoli
Emily	Carrots

Name _____

Date _____

Mean, Median, and Mode

Sue rode her bike each afternoon after school. For one week she recorded the number of miles she rode her bike each day. The number of miles were 3, 4, 3, 8, 1, 1, 1.

Different Ways to Describe Data

Range

The range is the difference between the greatest and the least number in the set. **The range is $8 - 1 = 7$.**

Mode

The mode is the number that appears most often in the set of data. **The mode is 1.**

Median

The median is the number that is in the middle when the numbers are ordered from least to greatest.
1, 1, 1, 3, 3, 4, 8. **The median is 3.**

Mean (Average)

The mean is the sum of the numbers divided by the number of addends.
 $3 + 4 + 3 + 8 + 1 + 1 + 1 = 21$
 $21 \div 7 = 3$. **The mean is 3.**

An **outlier** is a number that is distant from most of the other data. Most of the distances are between 1 and 4 miles, so 8 miles is an outlier.

Order the data from least to greatest. Find the range, mode, median, and mean. Then identify any outliers.

1. 5 10 6 9 20

range: _____

mode: _____

median: _____

mean: _____

outliers: _____

2. 10 12 12 4 12

range: _____

mode: _____

median: _____

mean: _____

outliers: _____

3. 5 6 2 7 20

range: _____

mode: _____

median: _____

mean: _____

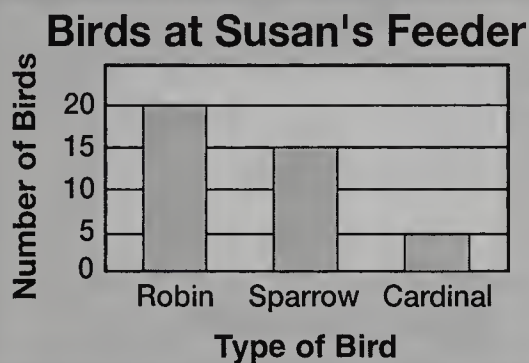
outliers: _____

Name _____ Date _____

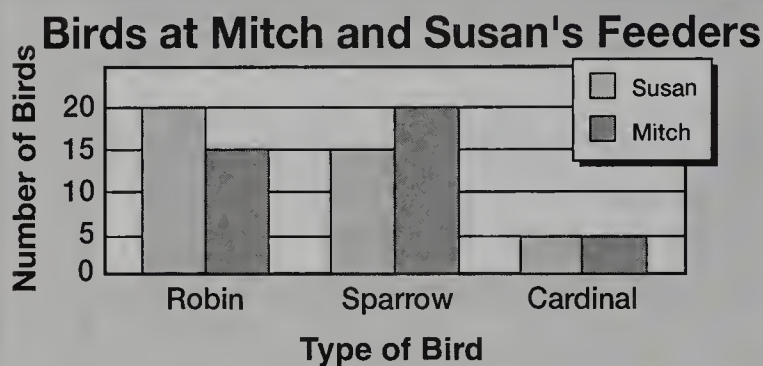
Use Bar Graphs

Susan saw many birds at her bird feeder. Which type of bird did she see the most of?

A bar graph can compare data. Robins are the birds Susan saw first.



Mitch also had a bird feeder. A double bar graph compares two sets of data. This one compares Mitch's data and Susan's data.

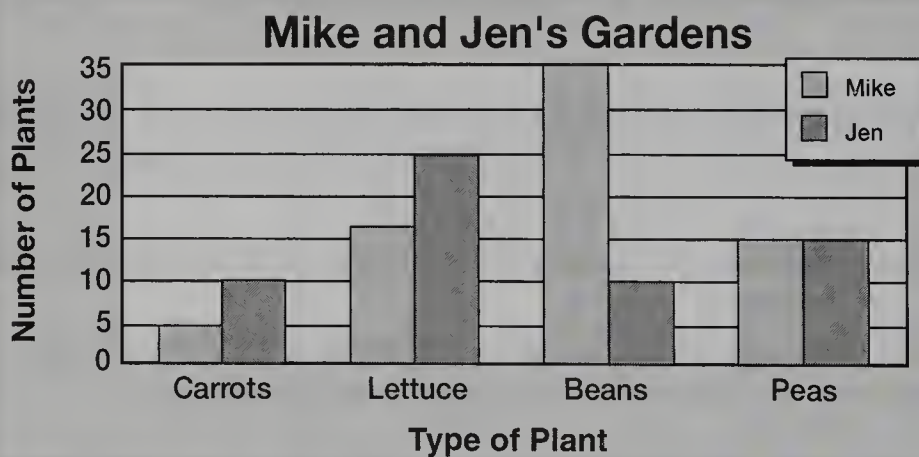


Use the bar graph to answer the questions.

- How many carrot plants did Mike have in his garden?

- Did Mike or Jen have more bean plants?

- How many pea plants do Mike and Jen have altogether?



- How many plants does Jen have in her garden altogether, if all of her plants are shown on the graph?

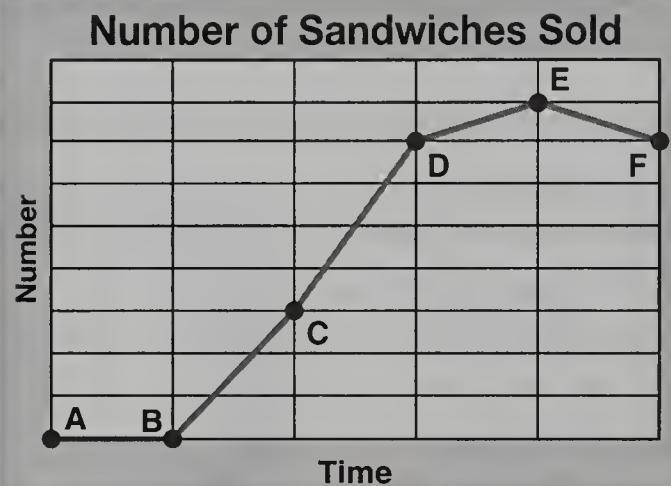
Name _____

Date _____

Problem-Solving Skill: Interpret a Line Graph

This line graph shows the number of sandwiches that the sandwich shop sold yesterday. The shop is open from the morning to the afternoon.

The vertical axis shows the number of sandwiches, and the horizontal axis shows the time.



Use the graph at the top of the page to answer questions 1-2.

1. Explain what happened between points B and E.

Think:

How are the number of sandwiches and the time related?

2. Between which times were the fewest number of sandwiches sold?

Think:

Which part of the graph shows the fewest sandwiches sold?

Name _____ Date _____

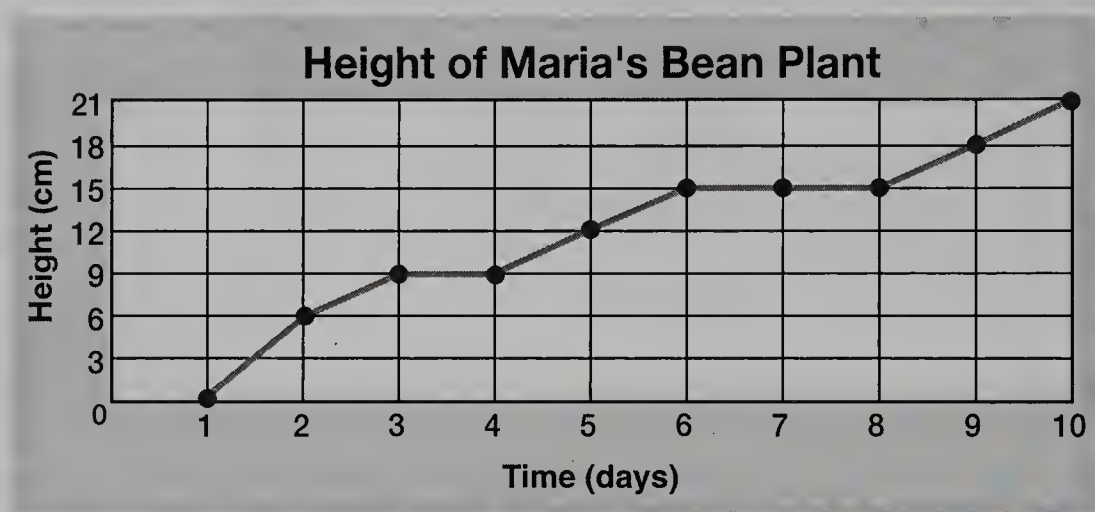
Read and Understand Line Graphs

Maria planted a bean seed in science class. How could she show how much the bean plant grew during the next two weeks?

Maria could put her data on a line graph.

A line graph shows how data changes over time.

The vertical axis shows the height of the plant. The horizontal axis shows the time the plant has been growing.



Use the line graph that shows the growth of Maria's bean plant to answer the following questions.

1. How much did Maria's bean plant grow between day 2 and day 3?

3. Between what two days did the bean plant grow the most quickly?

5. By day 5, how tall was Maria's bean plant?

2. How much taller was Maria's bean plant on day 7 than on day 6?

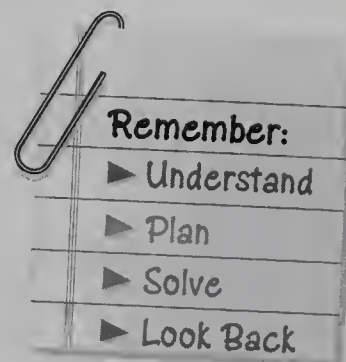
4. How much did the bean plant grow between day 8 and day 10?

6. How many days did it take for the plant to grow from 12 cm to 18 cm?

Name _____

Date _____

Problem-Solving Strategy: Choose a Strategy



Tim has some books in his bedroom. He has five library books, a 2-book set of mysteries and three 3-book sets of comic books. How many books does Tim have in his bedroom?

There are sometimes more than one way that a problem can be solved.

What is the question?

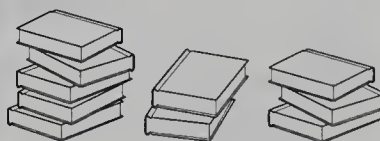
How many books does Tim have in his room?

How can you find the answer?

You can draw a picture, or you can write an equation.

Draw a Picture

Tim has 5 library books, one 2-book set and three 3-book sets



$$5 + 2 + 3 + 3 + 3$$

OR

Write an Equation

Let b = the number of books.

$$\begin{aligned} 5 + (1 \times 2) + (3 \times 3) &= b \\ 5 + 2 + 9 &= b \\ 16 &= b \end{aligned}$$

Solve each problem.

- Tim takes out 5 library books each week. How many weeks would it take Tim to check out 30 books?

Think:

What equation would help me solve the problem?

- Tim has joined a group at the bookstore. Each week they read and discuss 3 books. How many weeks would it take for them to read and discuss 21 books?

Think:

What kind of picture can I draw?

- The library is 3 miles from Tim's house. If Tim goes to and from the library 4 times a week, how many total miles would he travel?

Think:

What kind of picture can I draw?

- The overdue fee for a book at the library is 5¢ per day. If Tim has 3 books that are each 4 days overdue, how much money would he owe the library?

Think:

What equation would help me solve the problem?

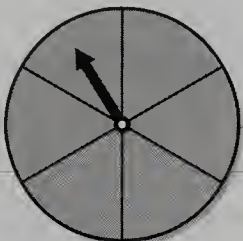
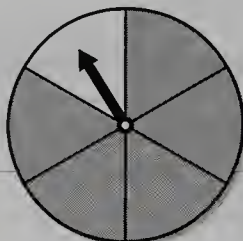
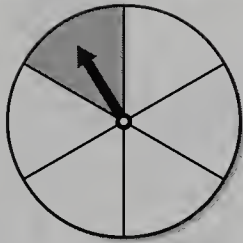

Name _____ Date _____

Probability and Outcomes

Probability is a way to describe the chance that an event will happen. An outcome is a possible result of a probability experiment. There are words you can use to tell about outcomes.

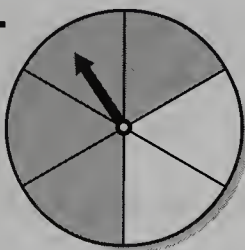
Probability of Landing on Gray

Words to Describe Outcomes

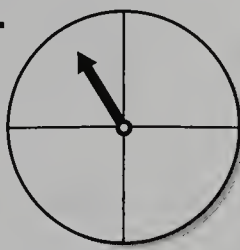
Certain		Likely	
Unlikely		Impossible	

Look at the spinners. Write *certain*, *likely*, *unlikely*, *impossible*, or *equally likely* to describe the probability of landing on gray.

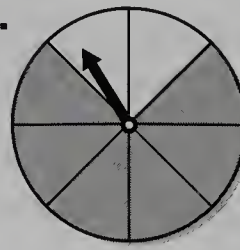
1.



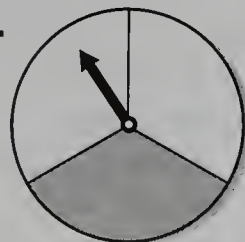
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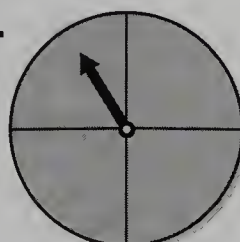
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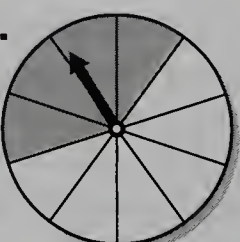
4.



5.



6.



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Find Probability

You can use either words or a fraction to describe the probability of an event.



Probability of the Spins, Landing on Each Color

Landing on white • 1 out of 4, or $\frac{1}{4}$ • **unlikely**

Landing on gray • 3 out of 4, or $\frac{3}{4}$ • **likely**

Landing on gray or white • 4 out of 4 or $\frac{4}{4}$ • **certain**

Landing on pink • 0 out of 4, or $\frac{0}{4}$ • **impossible**

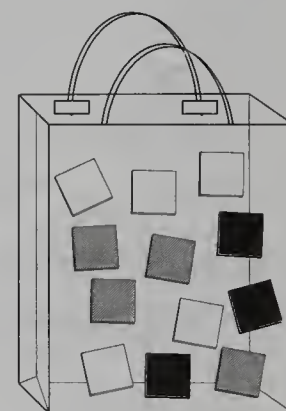
Suppose you draw one tile from this bag. Use words and a fraction to write the probability of each outcome.

1. Black tile

2. Gray tile

3. White tile

4. Yellow tile



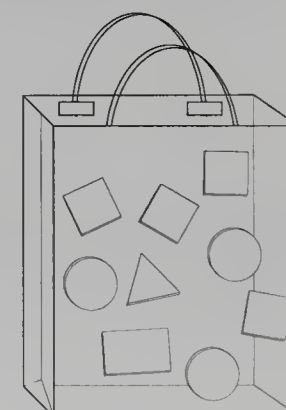
Suppose you draw one tile from this bag. Use words and a fraction to write the probability of each outcome.

5. Circle tile

6. Square tile

7. Rectangle tile

8. Triangle tile



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Making Predictions

It is possible to predict what is likely to happen in a probability experiment.

Imagine a bag with 10 cards: 3 red cards, 5 green cards and 2 yellow cards. Imagine that you drew a card from a bag 20 times.

How many times do you think you would draw a yellow card?

Out of 10 cards, how many are yellow?

2 out of 10

Use a chart like this to record your data.

Outcome	Tally	Number
Color 1		
Color 2		
Color 3		

- Try this experiment. Make 15 cards. Choose three colors. Make at least one card of each color. Record how many cards of each color you have. Record how many each color is out of the total number of cards.

- Make predictions about how many times you will pull each color card from a bag, if you pull cards 30 times.

- Choose a card from the bag 30 times. Make a tally table to record your results.

- Were your predictions close to the actual numbers? Why or why not?

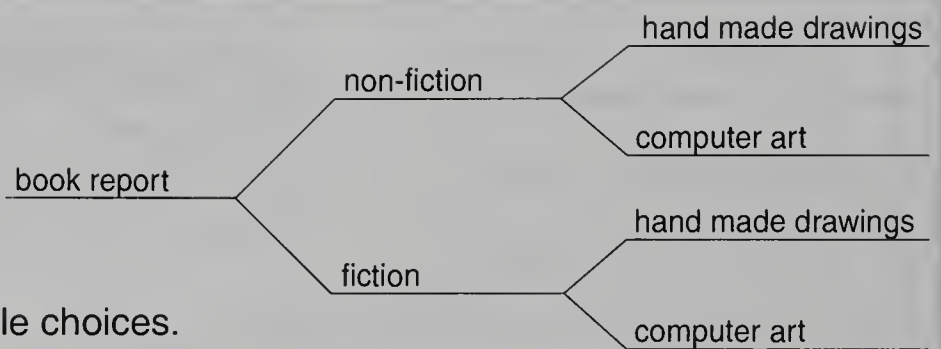
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Represent Outcomes

Stephanie needs to do a book report. She can choose a fictional book or a non-fiction book. She can either illustrate her report by hand or make computer art for illustrations. What are all of the different reports Stephanie could do?

A tree diagram can help you see all of the possible outcomes.



The branches represent the possible choices.

So, there are four possible types of reports that Stephanie can do.

1. A bag holds four cards, one blue, one yellow, one green, and one red. What is the probability of picking out a red card?


2. You toss a coin four times. What is the probability that it will land heads up twice and tails up twice?

3. Mike is shopping for a new shirt. He will choose red, green, or black for the color of his shirt. He will choose either a tee shirt or a dress shirt. Draw a tree diagram to show the possible outcomes. What is the probability that he chooses a green tee shirt?

4. Paula will check out a book from the library. She will choose either a mystery or a novel. She can choose either a paperback or a hardback version of the book. Draw a tree diagram to show the possible outcomes. What is the probability that she chooses a paperback novel?

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Problem-Solving Application: Use Data and Probability



Remember:

- Understand
- Plan
- Solve
- Look Back

Use the results of a survey to make predictions.

Twenty students were asked what their favorite pizza topping was.
Look at a tally chart of the students' answers.

Of 100 students, how many would like cheese the best?

Multiply to predict the results.
 $100 = 20 \times 5$.

Multiply 5×6 to predict how many out of 100 students like cheese.

$5 \times 6 = 30$

30 out of 100 students will probably like cheese best.

Favorite Pizza Toppings			
Cheese	Olives	Pepperoni	Peppers

1. The fourth graders asked 25 of their classmates to name their favorite dessert. The results are shown below.

Pie	Cake	Cookie	Fruit

Suppose 250 fourth graders answered this question. How many do you think would choose pie?

Think:

Out of 25 people, how many like pie the best?

2. Twenty teachers were asked to name their favorite grade to teach. The results are shown below.

1st	2nd	3rd	4th	5th

Suppose 120 teachers answered this question. How many do you think would choose fourth grade?

Think:




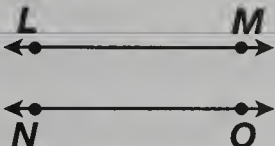

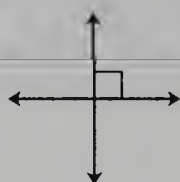
Out of 20 teachers, how many chose fourth grade?

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Points, Lines, and Line Segments

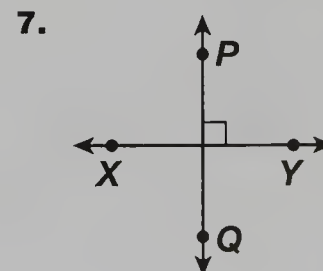
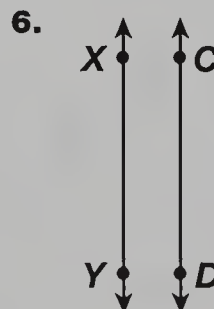
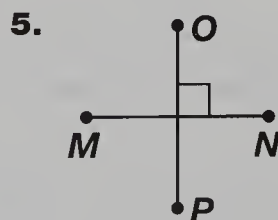
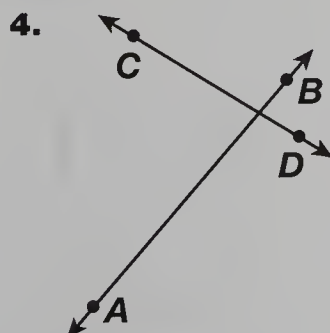
There are ways to say and write descriptions of geometric figures.

Point H 	Line GH or HG 	Line Segment PQ or QP 
Parallel lines are always the same distance apart. The symbol \parallel means "is parallel to." 	Intersecting lines cross each other. 	Perpendicular lines form a right angle. The symbol for perpendicular lines is \perp . 

Use words and symbols to name each figure.



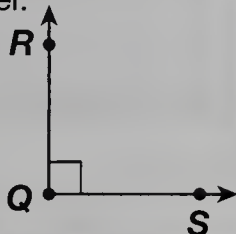
Write *parallel*, *intersecting* or *perpendicular* to describe the relationship between each pair of lines.



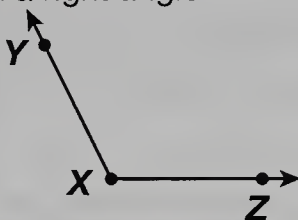
Name _____ Date _____

Rays and Angles

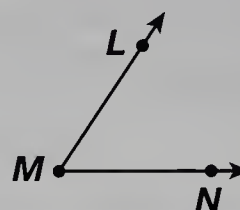
A **right angle** forms a square corner.



An **obtuse angle** is greater than a right angle.

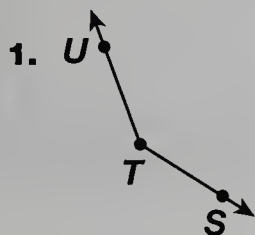


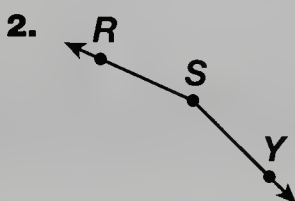
An **acute angle** is smaller than a right angle.

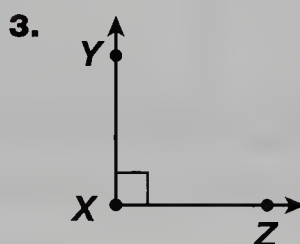


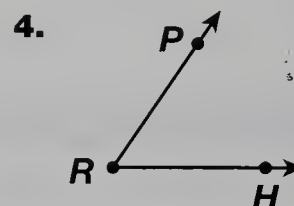
The sides of angles are made up of **rays**. The common endpoint is the **vertex**. When you name an angle, the vertex is always the middle letter.

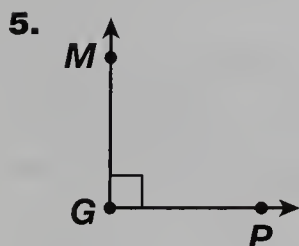
Name each angle in three ways. Then write whether each angle is *acute*, *obtuse*, or *right*.

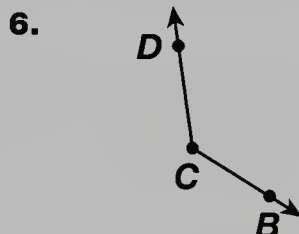


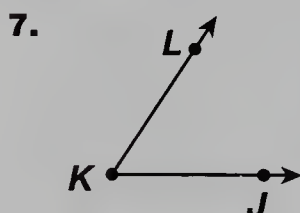


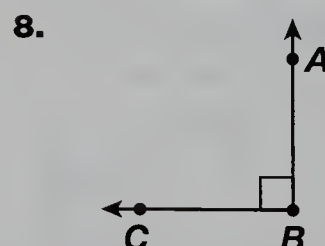












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Polygons and Quadrilaterals

A **polygon** is a flat, closed plane figure made up of 3 or more line segments called **sides**.

Polygons are named according to how many sides they have.

3 sides - **triangle**

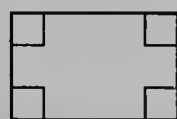
5 sides - **pentagon**

8 sides - **octagon**

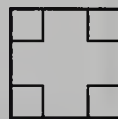
4 sides - **quadrilateral**

6 sides - **hexagon**

Quadrilaterals can have special names:



Rectangle



Square



Trapezoid

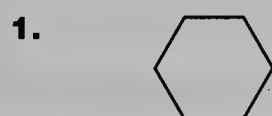


Parallelogram



Rhombus

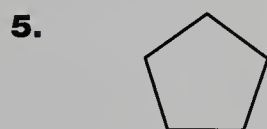
Name each polygon. If the polygon is a quadrilateral, write all names that apply.



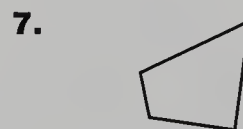


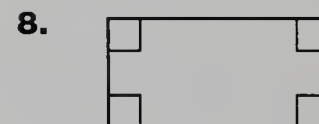


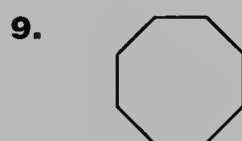


















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Classify Triangles

Triangles can be classified by the length of their sides or the size of their angles.

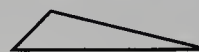
Equilateral triangle
3 equal sides



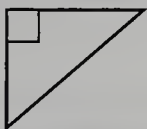
Isosceles triangle
At least two sides the same length



Scalene triangle
All sides different length



Right triangle
One right angle



Obtuse triangle
One obtuse angle



Acute triangle
All acute angles

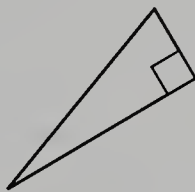


Classify each triangle as *equilateral*, *isosceles*, or *scalene* and as *right*, *obtuse*, or *acute*.

1.



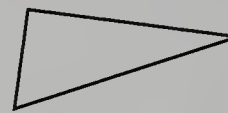
2.



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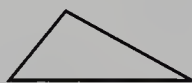
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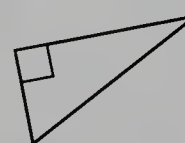
6.



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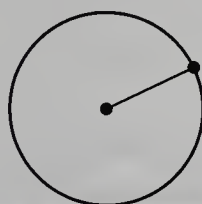
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Circles

A circle is made up of all points in a plane that are the same distance from a given point in that plane.

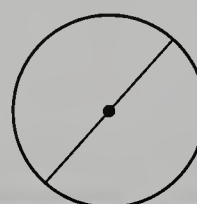
Radius

Any line segment that joins the center of the circle to any point on the circle



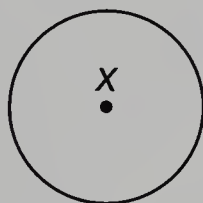
Diameter

Any line segment that passes through the center of a circle and has its endpoints on the circle

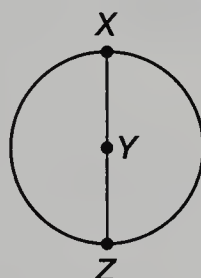


Name the part of each circle. Write *center*, *radius*, *diameter*, or *none of these*.

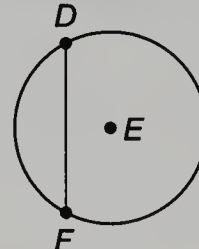
1. \overline{X}



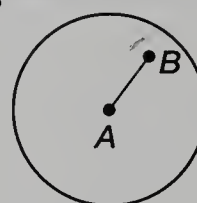
2. \overline{XZ}



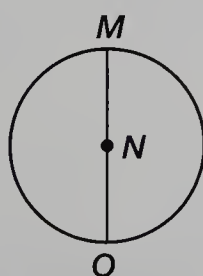
3. \overline{DF}



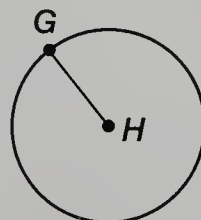
4. \overline{AB}



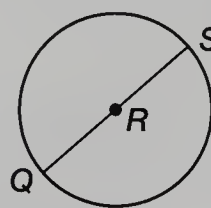
5. \overline{MO}



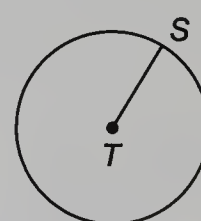
6. \overline{GH}



7. \overline{QS}



8. \overline{ST}

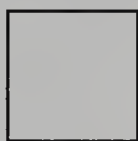
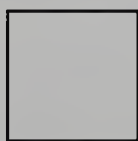


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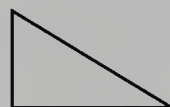
Congruent Figures

Plane figures that have the same size and shape are congruent figures.

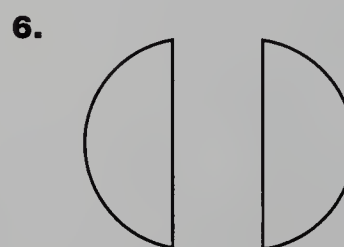
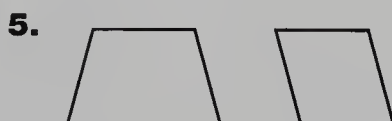
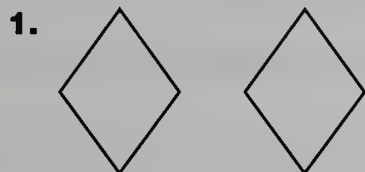
These figures are congruent.



These figures are not congruent.



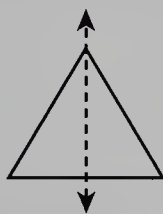
Do the figures in each pair appear to be congruent?



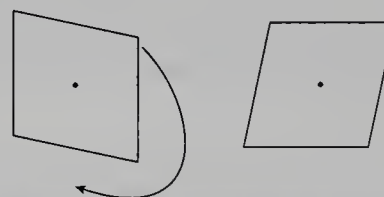
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Symmetry

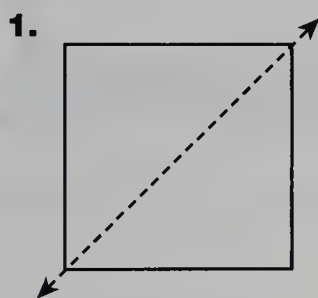
A figure has **line symmetry** if it can be folded so that two parts match exactly.

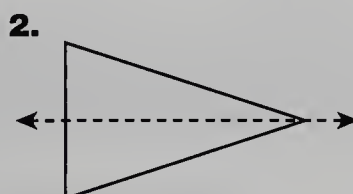


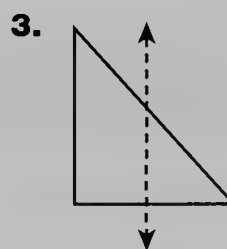
A figure has **rotational symmetry** if it can rotate less than one full turn about a point to make the figure look the same as it did before the rotation.

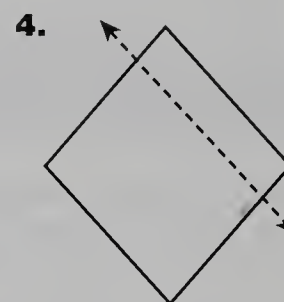


Is the dashed line, a line of symmetry? Write *yes* or *no*.



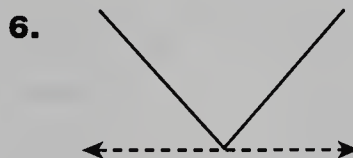






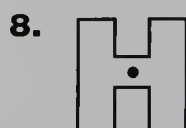
Draw each figure on grid paper. Draw the line of symmetry.
Draw the other half of the figure on your grid paper.

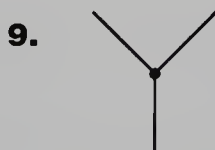


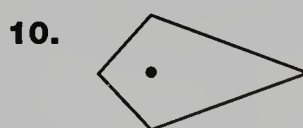


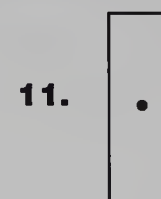


Does the figure have rotational symmetry? Write *yes* or *no*.







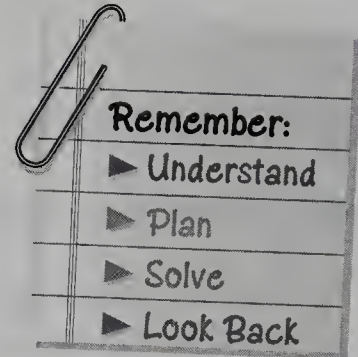


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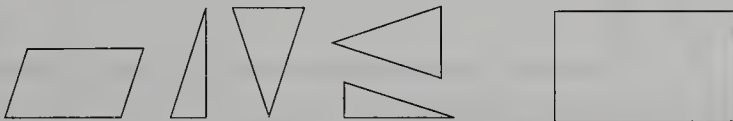
Date _____

Problem-Solving Strategy: Use Models to Act It Out

Sometimes you can use a model to help you solve problems.

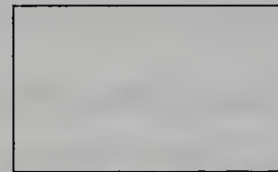


Can these five shapes be arranged to form a shape that is congruent to the large rectangle at the right?



Think: How can I arrange or turn the pieces?

Make a model of the five small shapes and the large shape on grid paper. Cut out and arrange the smaller pieces and arrange them to make a shape congruent to the large rectangle.



1. Could you use some of the figures to make a parallelogram?

Think:

How can I arrange or turn the pieces?

2. Could you use some of the figures to make a trapezoid?

Think:

How can I arrange or turn the pieces?

3. Draw a square. What 2 figures could you use to model your square? Draw lines inside the square to show the figures.

Think:

How could I divide the square?

4. Draw a trapezoid. How could you model the trapezoid with three figures? Draw lines to show the three figures you chose.

Think:

How could I divide the trapezoid?

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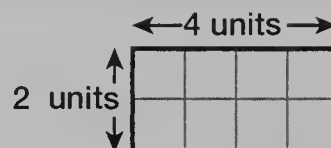
Modeling Perimeter and Area

Perimeter is the distance around a figure. The area is the number of square units needed to cover the figure.

Look at the figure on the right:

The perimeter is $2 + 2 + 4 + 4 = 12$ units.

The area is 8 square units.



Use grid paper to draw the figures described in each problem. Then find the perimeter and area and record your answers in the table.

Shape	Perimeter	Area
1. Square A		
2. Rectangle A		
3. Square B		
4. Rectangle B		
5. Square C		
6. Rectangle C		

1. Square A: length of sides = 3 units

2. Rectangle A: lengths of sides = 3 units, 3 units, 12 units, and 12 units

3. Square B: length of sides = 8 units

4. Rectangle B: lengths of sides = 5 units, 5 units, 6 units, and 6 units

5. Square C: length of sides = 1 unit

6. Rectangle C: lengths of sides = 3 units, 3 units, 7 units, and 7 units

Name _____

Date _____

Use Formulas for Perimeter and Area

You can use formulas to find the perimeter and area of a polygon.

The perimeter is the sum of the measurement of the sides.

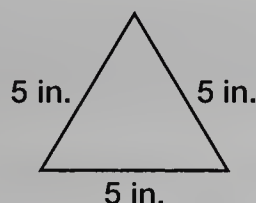
$$P = \ell + w + \ell + w$$

The area is the length times the width.

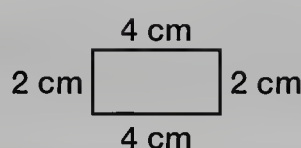
$$A = \ell \times w$$

Find the perimeter of each polygon.

1.



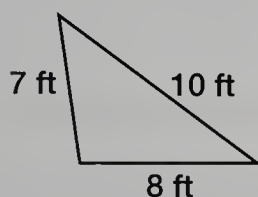
2.



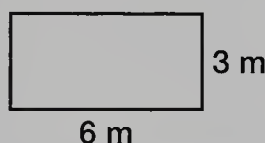
3.



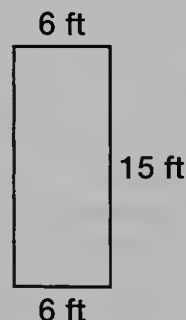
4.



5.

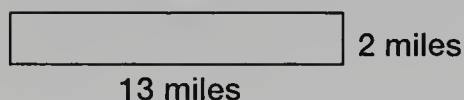


6.

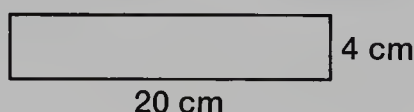


Use a formula to find the area of each polygon.

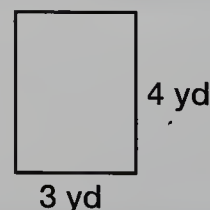
7.



8.



9.

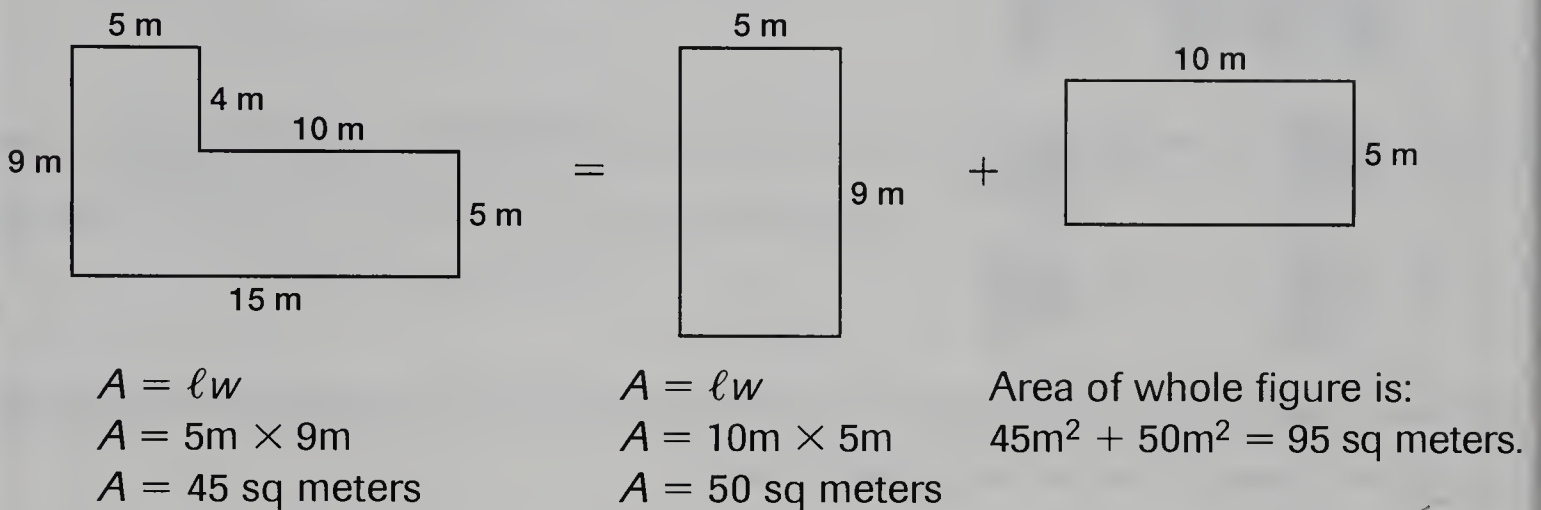


Name _____ Date _____

Perimeter and Area of Complex Figures

Find the perimeter and area of each figure.

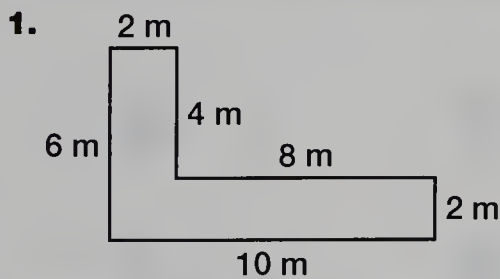
You can find the area of complex figures by separating the figure into simpler shapes.

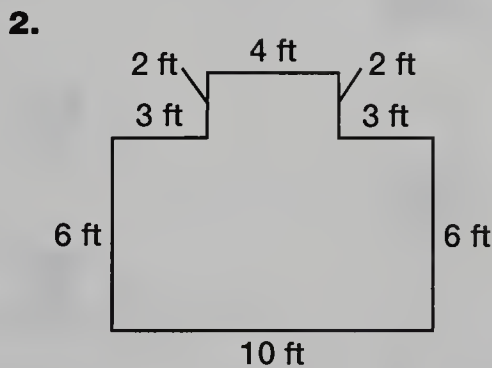


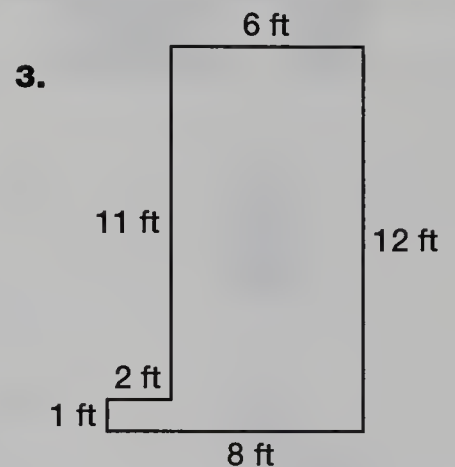
You can find the perimeter by adding the lengths of the sides.

$$P = 9 + 5 + 4 + 10 + 5 + 15 = 48 \text{ meters}$$

Find the perimeter and area of each figure.



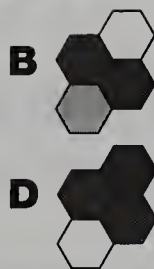
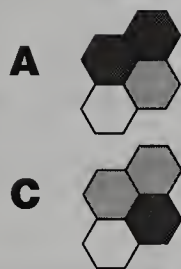




Name _____ Date _____

Problem-Solving Skill: Analyze Visual Problems

Choose the correct letter for the missing piece.



Think: Look at the rows to find the pattern.

The pattern in the columns repeats every other column.

The correct letter is **C**.

Choose the correct letter for the missing piece.

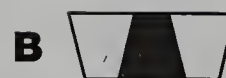
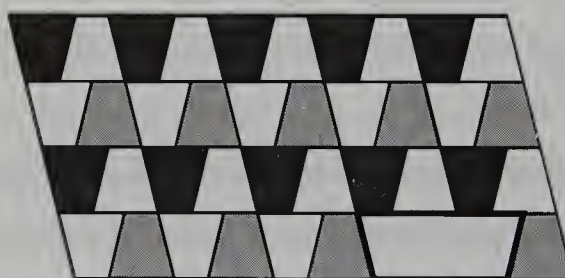
1.



Think:

Look at the columns to find the pattern.

2.



Think:

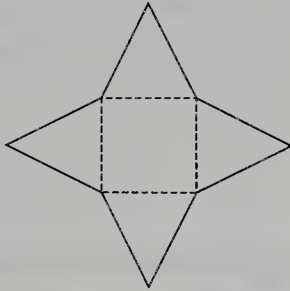
Look at the rows to find the pattern.

Name _____

Date _____

Solid Figures and Nets

Name the solid figure that can be made with this net.



Think: Are the faces of the solid figure polygons or circles?

Polygons

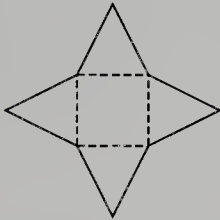
Think: How many faces will the figure have?

5

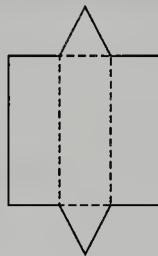
Some of the faces are triangles. The figure will be a pyramid or a triangular prism. Since the figure has 4 faces that are triangles, the figure will be a pyramid. The base is square, so the figure is a *square pyramid*.

Name the solid figure that can be made with each net.

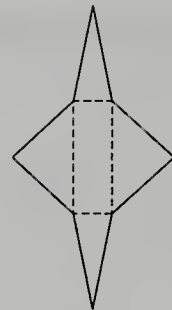
1.



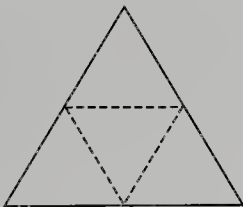
2.



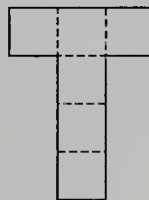
3.



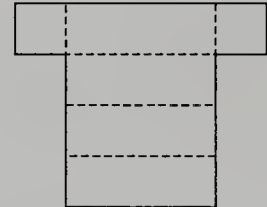
4.



5.



6.



Name the solid figure each object looks like.

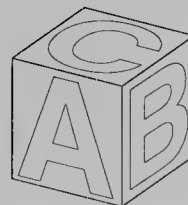
7.



8.



9.



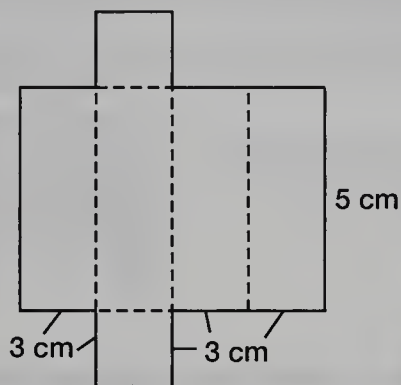
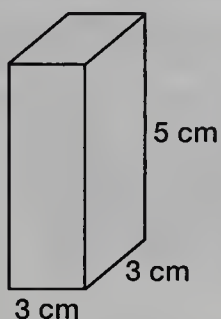
10.



Name _____ Date _____

Surface Area

Use the net to find the area of the solid figure.



Find the area of each face of the net. Use the formula $A = \ell \times w$.

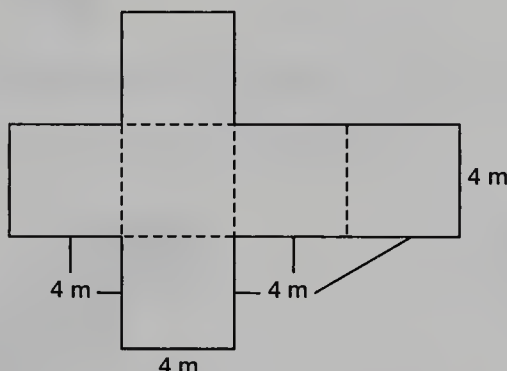
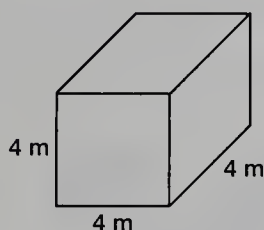
- Two faces have areas of $3 \times 3 = 9 \text{ cm}^2$.
- Four faces have areas of $5 \times 3 = 15 \text{ cm}^2$.

Add the areas of all the faces.

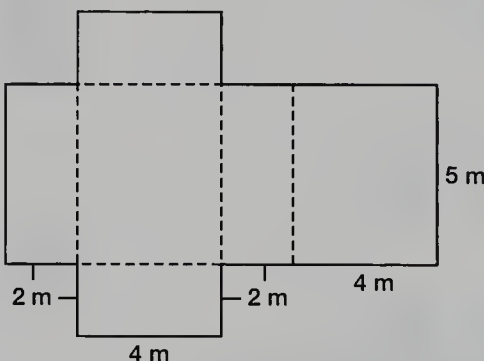
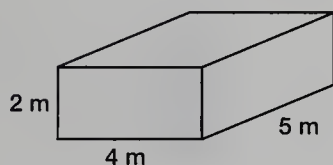
$$9 + 9 + 15 + 15 + 15 + 15 = 78 \text{ cm}^2.$$

Use the net to find the surface area of each solid figure.

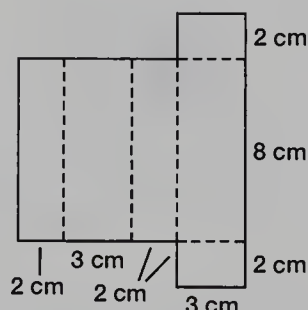
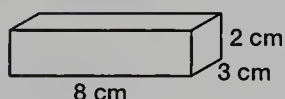
1.



2.



3.

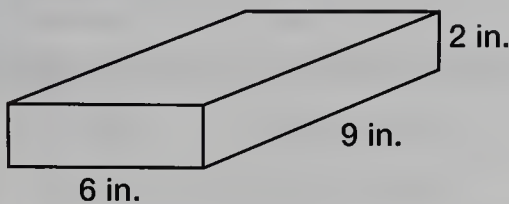


Name _____

Date _____

Volume

Find the volume of the figure.



A rectangular prism has three dimensions: length (ℓ), width (w), and height (h). You can find its volume (V) by multiplying these dimensions.

length = 9 inches
width = 6 inches
height = 2 inches

$$V = \ell \times w \times h$$

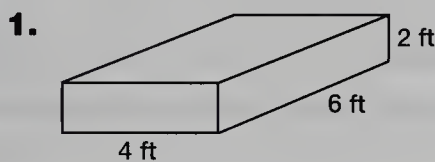
$$V = 9 \text{ in.} \times 6 \text{ in.} \times 2 \text{ in.}$$

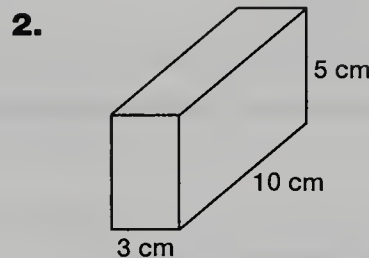
$$V = 108 \text{ cubic inches}$$

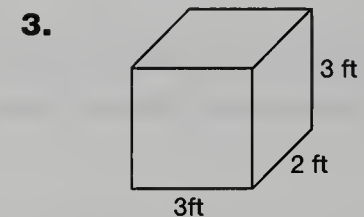
The volume of the box is 108 cubic inches.

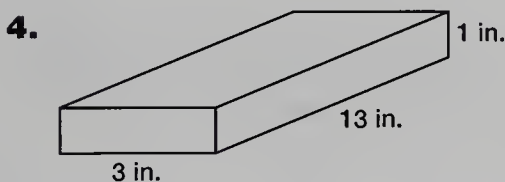
Remember to label your answers with the correct units.

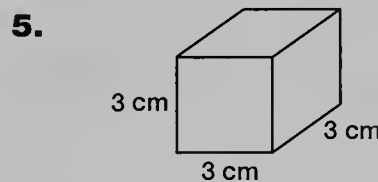
Find the volume of each figure.

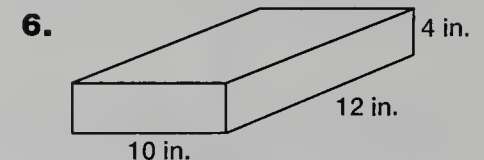


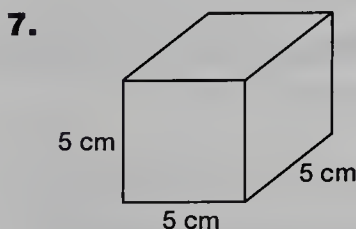


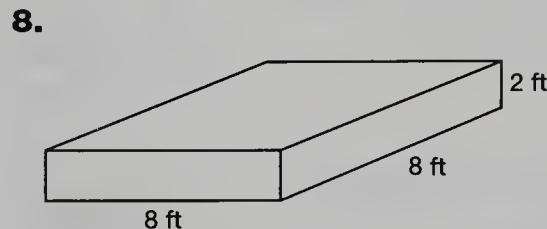


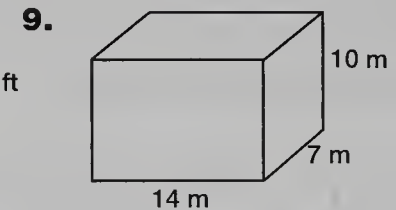








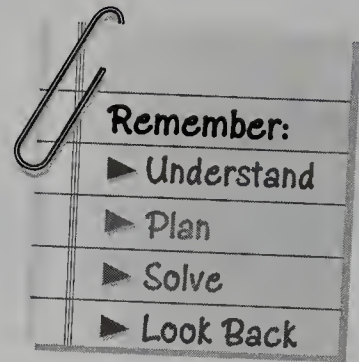




Name _____

Date _____

Problem-Solving Application: Using Formulas



The Alvins are building a pool. The pool is 20 feet long, 12 feet wide and 4 feet deep.

What is the surface area of the sides and bottom of the pool?

Remember not to add the area of the top.

Think: How do I find the surface area?

Multiply the dimensions of each part to find the area. Then add the areas together.

Bottom: $20 \times 12 = 240 \text{ ft}^2$

Long side: $20 \times 4 = 80 \text{ ft}^2$

Short side: $12 \times 4 = 48 \text{ ft}^2$

There are 2 long sides and 2 short sides, so the total area is

$240 + 80 + 80 + 48 + 48 = 496 \text{ ft}^2$

Use the information above to solve problems 1 and 2.

1. The Alvins need to have a cover for their pool. What is the surface area of the cover?

Think:

What is the shape of the cover?

2. How many cubic feet of water will the pool hold if it is full?

Think:

How do I find the volume of a rectangular prism?

3. What is the surface area of a present that is in the shape of a cube, 4 inches on each side?

Think:

How do I find the surface area of a cube?

4. A water tank measures 2 feet by 2 feet by 4 feet. How many cubic feet of water can the tank hold?

Think:

How do I find the volume of a rectangular prism?

Name _____

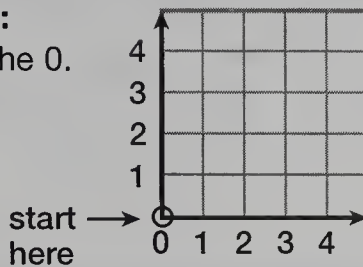
Date _____

Locate Points on a Grid Using Whole Numbers

Locate the point on the graph for the ordered pair (3, 2).

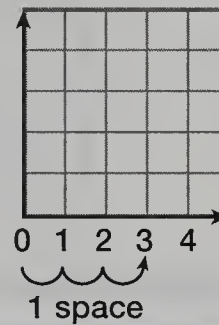
Start at 0

Think: Find the 0.



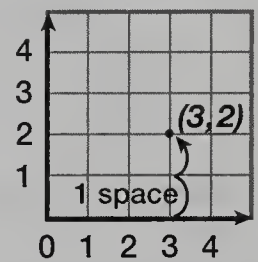
Move Right

Think: Move 3 units to the right.



Move Up

Think: Move 2 units up.



Use the graph to the right for exercises 1–7.

Which point and ordered pair do the following directions describe?

1. _____

- Start at 0
- Move right 6 units
- Move up 7 units

2. _____

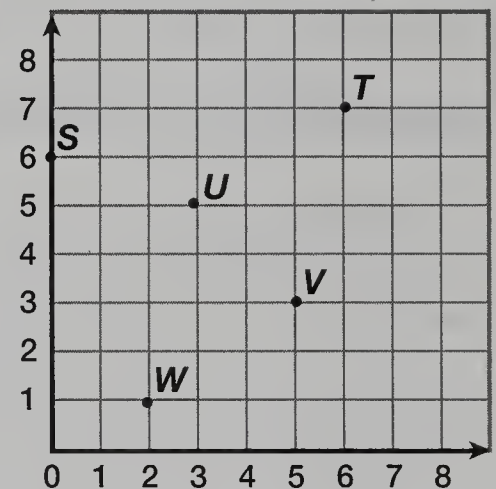
- Start at 0
- Move right 3 units
- Move up 5 units

3. _____

- Start at 0
- Move right 5 units
- Move up 3 units

4. _____

- Start at 0
- Move up 6 units



Complete the directions for the given points.

5. *W*

- Start at _____
- Move right _____ units
- Move up _____ units

6. *T*

- Start at _____
- Move right _____ units
- Move up _____ units

7. *U*

- Start at _____
- Move right _____ units
- Move up _____ units

Name _____

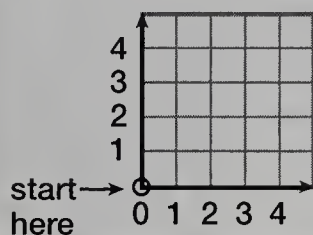
Date _____

Graph Ordered Pairs

On the graph below plot the point named by (2, 3). Label the point *W*.

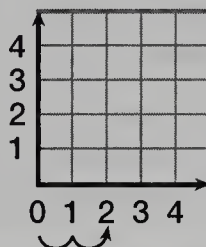
Start at 0

Think: Find the 0.



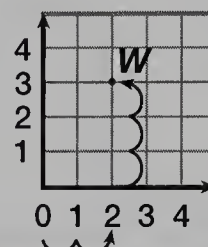
Move Right

Think: Move 2 units to the right.



Move Up, Label

Think: Move 3 units up.
Make a dot and label it *W*.



Use the graph to the right for Exercises 1–12.

Use the target. Is each point named by the ordered pair in the target?

1. (3, 4) _____

2. (5, 2) _____

3. (6, 7) _____

4. (2, 9) _____

5. (8, 7) _____

6. (0, 0) _____

7. (4, 6) _____

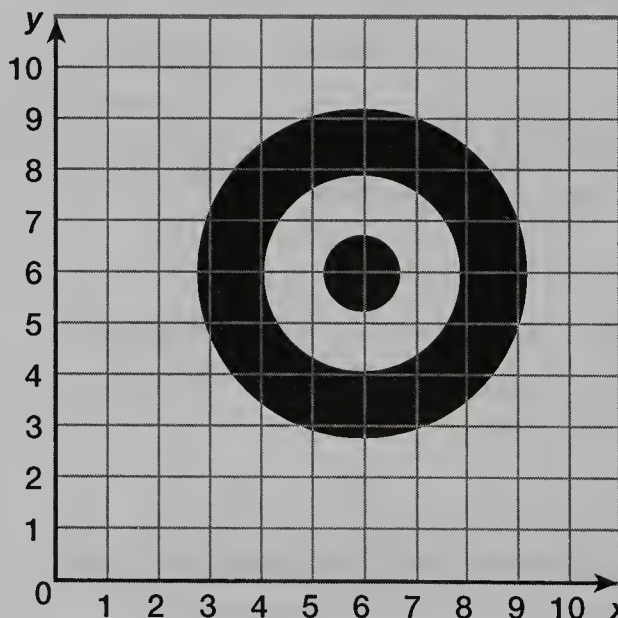
8. (9, 0) _____

9. (3, 8) _____

10. (5, 5) _____

11. (6, 6) _____

12. (9, 6) _____



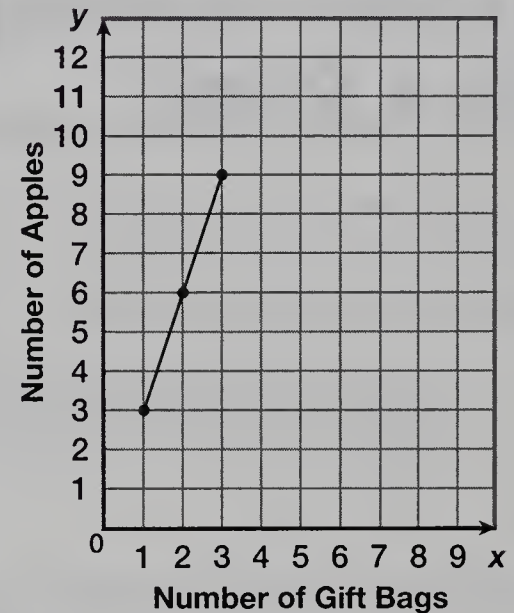
Name _____

Date _____

Graphs of Functions

Megan is making gift bags of apples. Each bag contains 3 apples. She wants to know how many apples she will need for 4 gift bags.

Gift Bags of Apples	
$y = 3x$	
x (Number of Gift Bags)	y (Number of Apples)
1	3
2	6
3	9



Plot

Write each pair of data as an ordered pair and plot it on the graph.

(1, 3), (2, 6), (3, 9)

Extend the Line Segment

Connect the points and extend the line segment. Observe that the points appear to lie on a line.

Find

Find the point on the line for 4 gift bags.

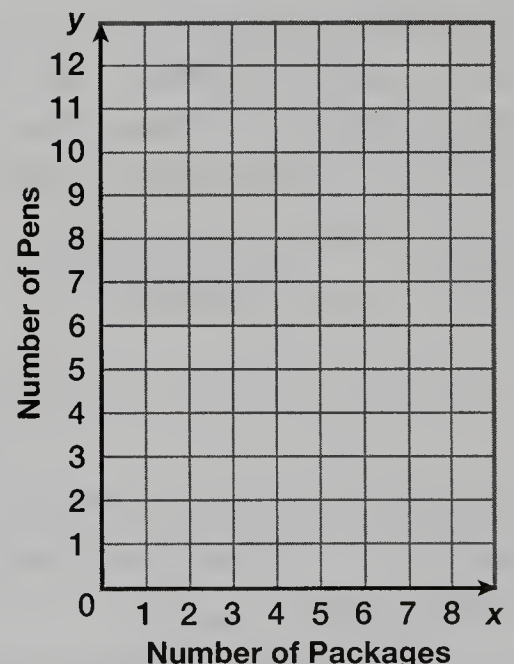
- Start at 0.
- Move 4 units to the right.
- Then move up to meet the line at (4, 12).

So, there are 12 apples in 4 gift bags.

Use the table below for exercises 1–3.

Packages of Pens	
$y = 2x$	
x (Number of Packages)	y (Number of Pens)
1	2
2	4
3	6

- Write the pairs of data in the table as ordered pairs.



- Plot the point named by the first ordered pair. Plot the other points and connect them. Extend the line segment.

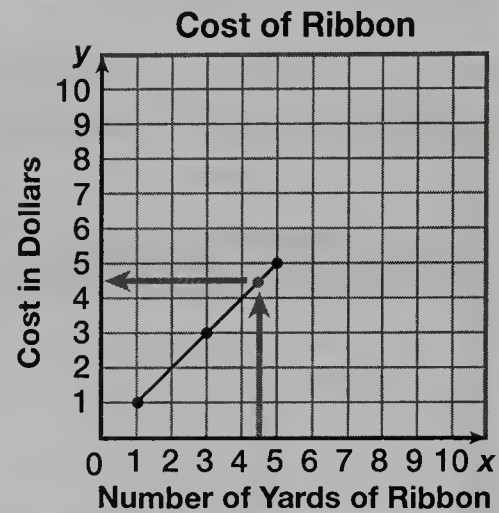
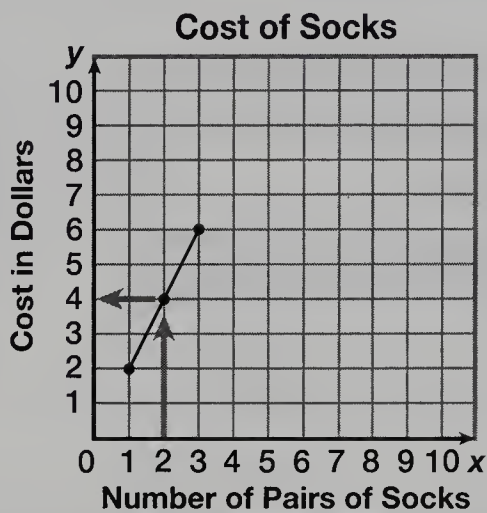
- Use the graph to decide how many pens you would expect to find in 6 packages.

Name _____

Date _____

Problem-Solving Skill: Use a Graph

Students are making sock puppets. They need to know how much supplies will cost.



Sometimes only some of the points on a line have meaning.

You can use this graph to find the cost of 1 pair of socks, 2 pairs of socks, 3 pairs of socks, and so on.

For example, the cost of 2 pairs of socks is \$4.

Sometimes every point on a line has meaning.

You can use this graph to find the cost of any length of ribbon.

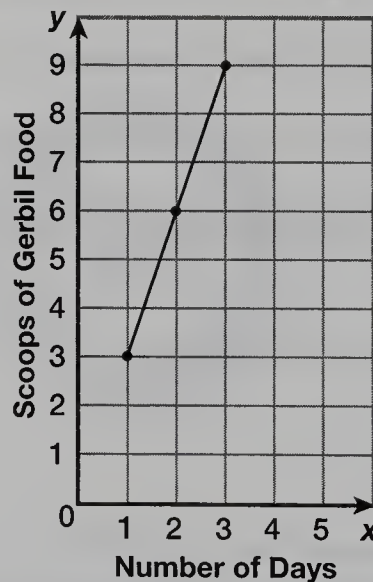
For example, the cost of $4\frac{1}{2}$ yards of ribbon is \$4.50.

Solve. Use the graph at the right.

- The class gerbils eat 3 scoops of gerbil food a day. If a student takes the gerbils home for 3 days, how many scoops of food should he take?

Think:

Can you use the points that are marked?



- Suppose a student takes home the gerbils for $1\frac{1}{2}$ days. How many scoops of food will be needed?

Think:

Is there a point on the line you can use?

- Suppose a student used 3 scoops of food. How many days did he keep the gerbils?

Think:

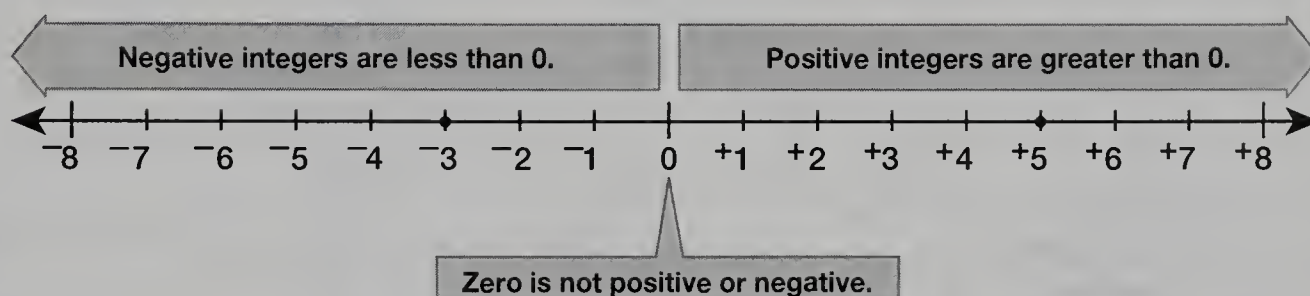
Can you use a point marked on the graph?

Name _____

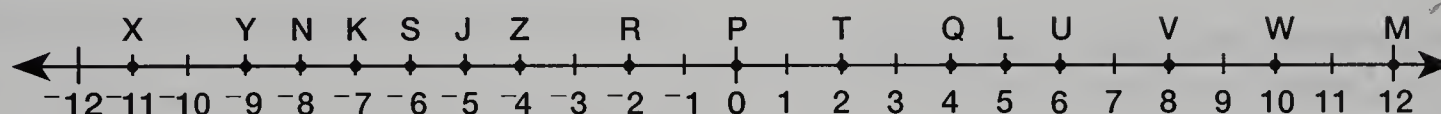
Date _____

Integers

Integers can be shown on a number line.



Write the integer for each letter on the number line.



1. Q

2. S

3. R

4. U

5. Z

6. W

7. V

8. T

9. N

10. P

11. X

12. Y

13. M

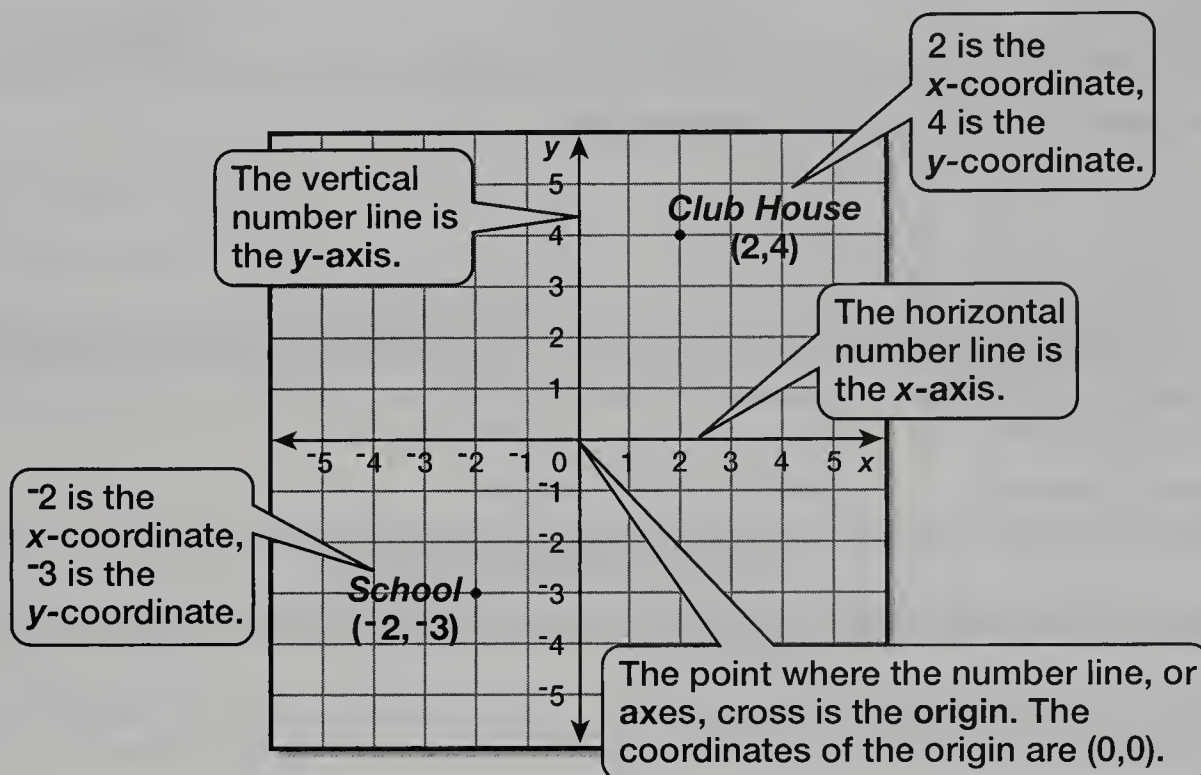
14. L

15. K

16. J

Name _____ Date _____

Identify Points on a Coordinate Plane

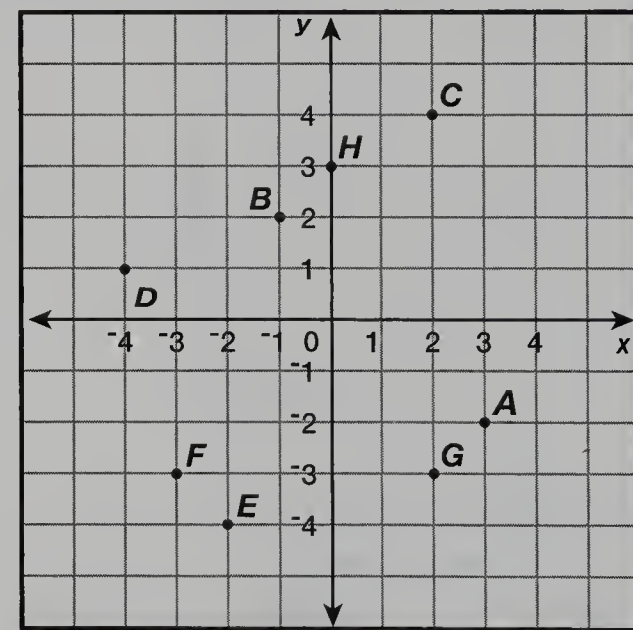


Use the graph at the right. Follow the directions. Write the letter and the coordinates of each ordered pair.

- Start at (0, 0)
 - Move right 3 spaces
 - Move down 2 spaces

- Start at (0, 0)
 - Move left 1 space
 - Move up 2 spaces

- Start at (0, 0)
 - Move right 2 spaces
 - Move up 4 spaces



- Start at (0, 0)
 - Move left 4 spaces
 - Move up 1 space

Name _____

Date _____

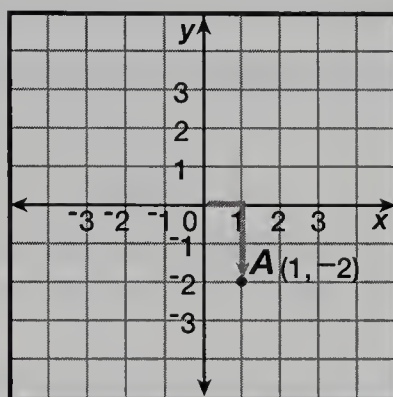
Graph Ordered Pairs on the Coordinate Plane

Find, mark and label Point A $(1, -2)$ and Point B $(-1, 2)$.

Step 1

- Start at $(0, 0)$.
- Move 1 space right.
- Move 2 spaces down.

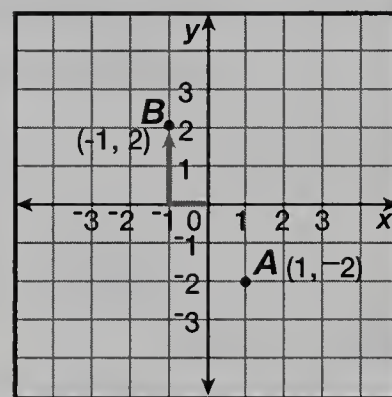
Make a dot and label the point A $(1, -2)$.



Step 2

- Start at $(0, 0)$.
- Move 1 space left.
- Move 2 spaces up.

Make a dot and label the point B $(-1, 2)$.



Complete the sentences for each point.

1. $(-4, 1)$

First move _____ units to the _____.

Then move _____ units _____.

2. $(-1, 4)$

First move _____ units to the _____.

Then move _____ spaces _____.

3. $(-1, -1)$

First move _____ units to the _____.

Then move _____ units _____.

4. $(-1, 1)$

First move _____ units to the _____.

Then move _____ units _____.

5. $(1, -2)$

First move _____ units to the _____.

Then move _____ units _____.

6. $(3, -4)$

First move _____ units to the _____.

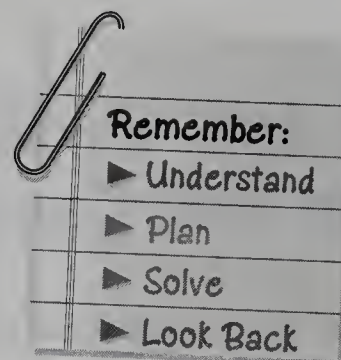
Then move _____ units _____.

Name _____

Date _____

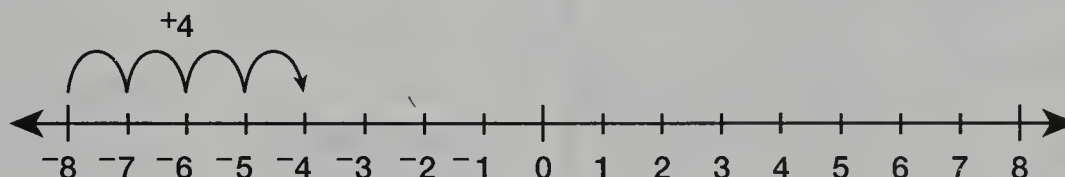
Problem-Solving Strategy: Choose a Strategy

Dana borrowed \$8 from her brother to buy a necklace. The next day, she paid him back \$4. How much does Dana owe her brother?



Use either the Use a Model or the Draw a Picture strategy.

Use a Model



Draw a Picture



Dana owes her brother \$4.

Use a strategy to solve each problem.

- Richard wants to buy a \$16 model kit. He has \$7 already. If he borrows the rest from his sister, how much will he owe her?

Think:

Can I make a model to solve this problem?

- Ana wants to give each guest at her party a sandwich. There are 8 people coming to her party. If she has already made 5 sandwiches, how many more sandwiches will she need?

Think:

Can I draw a picture to solve this problem?

- The balance of Mark's account to his sister Sally was -2 after he paid her \$6. What was his balance before he paid her the \$6?

Think:

Can I draw a picture to solve this problem?

- The Rodriguez family went to a restaurant. There are 4 people in the family and each ordered a meal that cost \$7. How much does the family owe the restaurant?

Think:

Can I make a table to solve this problem?

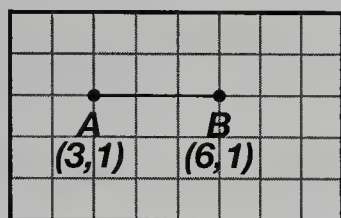
Name _____

Date _____

Find Lengths on a Coordinate Plane

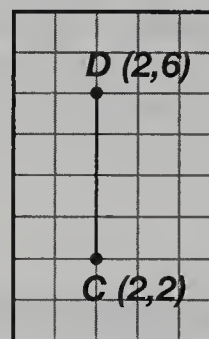
Use coordinates to find lengths of line segments.

To find the length of a horizontal line segment, find the difference between the x-coordinates.



$$6 - 3 = 3$$

To find the length of a vertical line segment, find the difference between the y-coordinates.

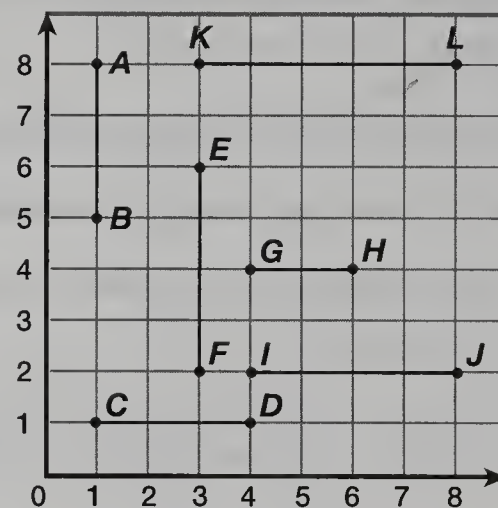


$$6 - 2 = 4$$

Find the length of each line segment.

1. CD _____
2. EF _____
3. GH _____
4. IJ _____
5. AB _____
6. KL _____

How many units long are the following line segments?



7. How many units long is the line segment that connects the points whose ordered pairs are (9, 14) and (9, 6)?

8. How many units long is the line segment that connects the points whose ordered pairs are (3, 7) and (8, 7)?

9. How many units long is the line segment that connects the points whose ordered pairs are (1, 5) and (1, 18)?

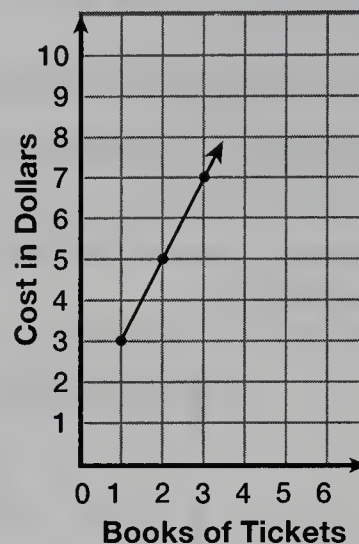
10. How many units long is the line segment that connects the points whose ordered pairs are (2, 12) and (6, 12)?

Name _____

Date _____

Problem-Solving Application: Use a Graph

The first book of tickets to the carnival is \$3. The next books are \$2 each. How much money will it cost to buy 5 books of tickets?



What is the question?

How much do 5 books of tickets cost? The line on the graph shows how much 1, 2, or 3 cost.

How can you find the answer?

I can extend the line.

Solve

Think: The point (5, 17) is on the graph. So it will cost \$17 to buy 5 books.

Solve. Use the graph at the right.

- How much will it cost to buy 4 packages of beads?

Think:

Is the information you need shown on the graph?

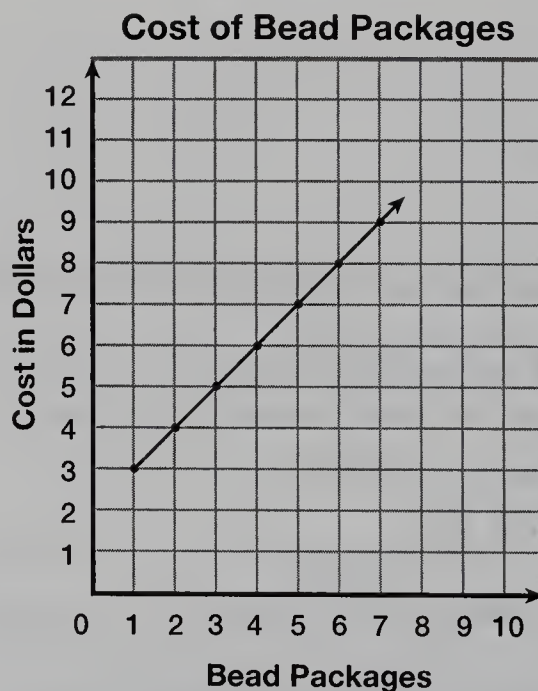
- How much will it cost to buy 8 packages of beads?

Think:

Can you extend the line to help find the answer?

- How much will it cost to buy 9 packages of beads?

- If George spent \$5, how many packages of beads did he buy?



Name _____

Date _____

Mental Math: Divide by Multiples of 10

You can use basic facts to find each quotient.

Find $90 \div 30$.

What basic fact can help you?

$$9 \div 3 = 3$$

So,

$$90 \div 30 = 3$$

$$\text{because } 3 \times 30 = 90$$

and

$$900 \div 30 = 30$$

$$9,000 \div 30 = 300$$

$$90,000 \div 30 = 3,000$$

Use basic facts to help you divide.

1. $63 \div 9 =$ _____

$630 \div 90 =$ _____

$6,300 \div 90 =$ _____

$63,000 \div 90 =$ _____

2. $45 \div 9 =$ _____

$450 \div 90 =$ _____

$4,500 \div 90 =$ _____

$45,000 \div 90 =$ _____

3. $48 \div 6 =$ _____

$480 \div 60 =$ _____

$4,800 \div 60 =$ _____

$48,000 \div 60 =$ _____

4. $36 \div 6 =$ _____

$360 \div 60 =$ _____

$3,600 \div 60 =$ _____

$36,000 \div 60 =$ _____

5. $18 \div 2 =$ _____

$180 \div 20 =$ _____

$1,800 \div 20 =$ _____

$18,000 \div 20 =$ _____

6. $54 \div 9 =$ _____

$540 \div 90 =$ _____

$5,400 \div 90 =$ _____

$54,000 \div 90 =$ _____

7. $40 \div 5 =$ _____

$400 \div 50 =$ _____

$4,000 \div 50 =$ _____

$40,000 \div 50 =$ _____

8. $32 \div 4 =$ _____

$320 \div 40 =$ _____

$3,200 \div 40 =$ _____

$32,000 \div 40 =$ _____

9. $14 \div 7 =$ _____

$140 \div 70 =$ _____

$1,400 \div 70 =$ _____

$14,000 \div 70 =$ _____

10. $72 \div 9 =$ _____

$720 \div 90 =$ _____

$7,200 \div 90 =$ _____

$72,000 \div 90 =$ _____

11. $24 \div 6 =$ _____

$240 \div 60 =$ _____

$2,400 \div 60 =$ _____

$24,000 \div 60 =$ _____

12. $30 \div 5 =$ _____

$300 \div 50 =$ _____

$3,000 \div 50 =$ _____

$30,000 \div 50 =$ _____

13. $20 \div 5 =$ _____

$200 \div 50 =$ _____

$2,000 \div 50 =$ _____

$20,000 \div 50 =$ _____

14. $18 \div 3 =$ _____

$180 \div 30 =$ _____

$1,800 \div 30 =$ _____

$18,000 \div 30 =$ _____

15. $21 \div 3 =$ _____

$210 \div 30 =$ _____

$2,100 \div 30 =$ _____

$21,000 \div 30 =$ _____

Name _____

Date _____

One-Digit Quotients

You can divide by a two-digit divisor.

Find $119 \div 35$.

Step 1 Decide where to place the first digit in the quotient.

$35 \overline{)119}$ $35 > 1$
not enough hundreds

$35 \overline{)119}$ $35 > 11$
not enough tens

$35 \overline{)119}$ $35 < 111$
There are enough ones.

The remainder should always be less than the divisor.

Step 2 Divide the ones.

3
 $35 \overline{)119}$

Multiply. 3×35
 -105 Subtract. $119 - 105$
 14 Compare. $14 < 35$

Check your answer.
Multiply. Then add.

35
 $\times 3$ Multiply
 $\hline 105$
 $+ 14$ Add
 $\hline 119$

Complete each division problem.

1. $24 \overline{)144}$

2. $56 \overline{)189}$

3. $25 \overline{)189}$

4. $42 \overline{)313}$

5. $36 \overline{)288}$

6. $71 \overline{)223}$

7. $65 \overline{)499}$

8. $92 \overline{)385}$

9. $89 \overline{)296}$

10. $64 \overline{)382}$

11. $53 \overline{)325}$

12. $37 \overline{)279}$

13. $28 \overline{)138}$

14. $76 \overline{)498}$

15. $45 \overline{)321}$

Name _____

Date _____

Estimate the Quotient

You can estimate quotients.

Estimate $27 \overline{)178}$.

Step 1 Use basic facts and multiples of 10 to find a dividend and divisor that are close to 27 and 178 and will divide evenly.

$$\begin{array}{r} 178 \div 27 \\ \downarrow \quad \downarrow \\ 180 \div 30 = 6 \end{array}$$

The basic fact $18 \div 3 = 6$ helps you find the numbers.

Step 2 Divide to check.

$$\begin{array}{r} 6 \\ 30 \overline{)180} \\ -180 \\ \hline 0 \end{array}$$

So $27 \overline{)178}$ is about 6.

Complete each exercise. Use a new dividend and a new divisor to estimate.

1. $\begin{array}{r} 39 \div 15 \\ \downarrow \quad \downarrow \\ 40 \div \underline{\quad} = \underline{\quad} \end{array}$

2. $\begin{array}{r} 36 \div 16 \\ \downarrow \quad \downarrow \\ \underline{\quad} \div 20 = \underline{\quad} \end{array}$

3. $\begin{array}{r} 92 \div 34 \\ \downarrow \quad \downarrow \\ \underline{\quad} \div 30 = \underline{\quad} \end{array}$

4. $\begin{array}{r} 59 \div 13 \\ \downarrow \quad \downarrow \\ \underline{\quad} \div 10 = \underline{\quad} \end{array}$

5. $\begin{array}{r} 86 \div 33 \\ \downarrow \quad \downarrow \\ \underline{\quad} \div 30 = \underline{\quad} \end{array}$

6. $\begin{array}{r} 35 \div 12 \\ \downarrow \quad \downarrow \\ \underline{\quad} \div 10 = \underline{\quad} \end{array}$

7. $\begin{array}{r} 57 \div 16 \\ \downarrow \quad \downarrow \\ \underline{\quad} \div 20 = \underline{\quad} \end{array}$

8. $\begin{array}{r} 162 \div 81 \\ \downarrow \quad \downarrow \\ \underline{\quad} \div 80 = \underline{\quad} \end{array}$

9. $\begin{array}{r} 94 \div 27 \\ \downarrow \quad \downarrow \\ \underline{\quad} \div 30 = \underline{\quad} \end{array}$

10. $\begin{array}{r} 76 \div 18 \\ \downarrow \quad \downarrow \\ \underline{\quad} \div \underline{\quad} = \underline{\quad} \end{array}$

11. $\begin{array}{r} 79 \div 38 \\ \downarrow \quad \downarrow \\ \underline{\quad} \div \underline{\quad} = \underline{\quad} \end{array}$

12. $\begin{array}{r} 197 \div 36 \\ \downarrow \quad \downarrow \\ \underline{\quad} \div \underline{\quad} = \underline{\quad} \end{array}$

13. $\begin{array}{r} 135 \div 73 \\ \downarrow \quad \downarrow \\ \underline{\quad} \div \underline{\quad} = \underline{\quad} \end{array}$

14. $\begin{array}{r} 723 \div 86 \\ \downarrow \quad \downarrow \\ \underline{\quad} \div \underline{\quad} = \underline{\quad} \end{array}$

15. $\begin{array}{r} 76 \div 16 \\ \downarrow \quad \downarrow \\ \underline{\quad} \div \underline{\quad} = \underline{\quad} \end{array}$

Name _____ Date _____

Problem-Solving Skill: Multistep Problems

You can solve problems that involve more than one step.

Abby is making jelly. It takes 4 quarts of strawberries to make a large jar of jelly. Strawberries are sold in flats. Each flat holds 8 quarts. If Abby has to make 18 jars of jelly, how many flats will she need?

What do you know?

- 4 quarts of strawberries are in each jar of jelly
- a flat holds 8 quarts of strawberries

What do you need to know?

- how many flats of strawberries are needed to make 18 jars of jelly.

Step 1 Find the total number of quarts of strawberries needed.

$$18 \times 4 = 72$$

Step 2 Find the number of flats needed to get 72 quarts.

$$18 \times 4 = 72$$

Abby needs 9 flats of strawberries to make her jelly.

Solve.

1. Diane is making 24 strawberry pies. Each pie needs 2 cups of sugar. There are 10 cups of sugar in a 5-lb bag. How many 5-lb bags of sugar will she need?

Think:

How much sugar does Diane need?

2. Lenny has to remove the stems from 58 quarts of berries. It takes him 10 minutes to remove the stems from 1 quart of berries. About how many hours will it take Lenny to finish?

Think:

How many quarts can he finish in 1 hour?

3. A plant can produce 18 strawberries. There are 25 strawberries in a quart. How many plants will it take to produce 30 quarts of strawberries?

Think:

How many strawberries are in 30 quarts?

4. There are 8 pieces in a strawberry pie. How many strawberry pies will be needed to feed 34 people if everyone wants 2 pieces of pie?

Think:

How many pies are needed if each person has 1 piece?

Name _____

Date _____

Two-Digit Quotients

You can divide when the quotient has two digits.

Find $1,986 \div 38$.

Step 1 Estimate to decide where to place the first digit.

$$38 \overline{)1,986}$$

$$40 \overline{)2,000}$$

Step 2 Try the estimate. Divide.

$$\begin{array}{r} 5 \\ 38 \overline{)1,986} \\ \underline{-190} \\ 8 \end{array}$$

Subtract $198 - 190$.

Step 3 Bring down the ones. Estimate. Divide.

$$\begin{array}{r} 52R10 \\ 38 \overline{)1,986} \\ \underline{-190} \\ 86 \\ \underline{-76} \\ 10 \end{array}$$

Subtract

Step 4 Check your answer. Multiply. Then add.

$$\begin{array}{r} 52 \\ \times 38 \\ \hline 416 \\ + 1,560 \\ \hline 1,976 \\ + 10 \\ \hline 1,986 \end{array}$$

Multiply
 $\leftarrow 52 \times 8$
 $\leftarrow 52 \times 3$

Divide.

1. $19 \overline{)289}$

2. $56 \overline{)792}$

3. $27 \overline{)643}$

4. $33 \overline{)896}$

5. $42 \overline{)985}$

6. $74 \overline{)1,639}$

7. $61 \overline{)4,416}$

8. $53 \overline{)3,985}$

9. $36 \overline{)1,576}$

10. $28 \overline{)2,338}$

11. $78 \overline{)4,394}$

12. $45 \overline{)4,293}$

Name _____ Date _____

Adjusting the Quotient

You can adjust your estimate of the quotient as you divide.

Find $959 \div 25$.

<p>Step 1 Try a first digit in the quotient.</p> $\begin{array}{r} 2 \\ 25 \overline{)959} \\ \underline{-50} \\ 45 \end{array} \quad 45 > 25$ <p>2 is too small.</p>	<p>Step 2 Adjust the quotient. Try 3.</p> $\begin{array}{r} 3 \\ 25 \overline{)959} \\ \underline{-75} \\ 20 \end{array} \quad 20 < 25$ <p>So 3 is correct.</p>	<p>Step 3 Bring down the next digit. Try 9.</p> $\begin{array}{r} 3 \\ 25 \overline{)959} \\ \underline{-75} \\ 209 \\ \underline{-225} \end{array} \quad 225 > 209$ <p>So 9 is too large.</p>	<p>Step 4 Try 8.</p> $\begin{array}{r} 38 \text{ R}9 \\ 25 \overline{)959} \\ \underline{-75} \\ 209 \\ \underline{-200} \\ 9 \end{array} \quad 200 < 209$ <p>So 8 is correct.</p>
--	--	---	---

Write *too large* or *too small* for each first estimate of the quotient. Then find the correct answer.

1.
$$\begin{array}{r} 33 \\ 26 \overline{)913} \end{array}$$

2.
$$\begin{array}{r} 18 \\ 46 \overline{)936} \end{array}$$

3.
$$\begin{array}{r} 29 \\ 21 \overline{)591} \end{array}$$

4.
$$\begin{array}{r} 20 \\ 38 \overline{)712} \end{array}$$

5.
$$\begin{array}{r} 20 \\ 37 \overline{)782} \end{array}$$

6.
$$\begin{array}{r} 20 \\ 26 \overline{)549} \end{array}$$

7.
$$\begin{array}{r} 45 \\ 18 \overline{)889} \end{array}$$

8.
$$\begin{array}{r} 41 \\ 22 \overline{)883} \end{array}$$

9.
$$\begin{array}{r} 24 \\ 37 \overline{)997} \end{array}$$

10.
$$\begin{array}{r} 40 \\ 14 \overline{)590} \end{array}$$

11.
$$\begin{array}{r} 15 \\ 49 \overline{)679} \end{array}$$

12.
$$\begin{array}{r} 31 \\ 22 \overline{)645} \end{array}$$

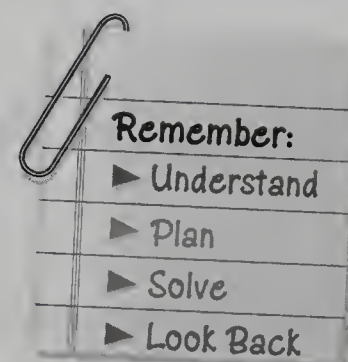
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146 Use with text pages 584-585.

Name _____

Date _____

Problem-Solving Strategy: Solve a Simpler Problem



Use a simpler problem to help you solve word problems.

On Field day, the 72 fourth graders will be running races. Each student must run in 3 events. There can be no more than 8 runners in any event. How many events will have to be held so that everyone gets 3 turns?

What do you know?

- There are 72 fourth graders
- Each student must run in 3 events
- There can be no more than 8 runners in any event

Think:

How can I find the answer?
First solve a simpler problem.
1 event would be needed for 8 students.
9 events would be needed for 72 students.

Solve

Then use the simple problem to solve the difficult one.
 9×3 events would be needed for all students to have 3 turns.
 $9 \times 3 = 27$
27 events are needed.

Solve these problems using Solve a Simpler Problem strategy.

1. There are 44 relay races in the competition. Four teams compete in each race. Each team passes a baton 3 times. How many times will a baton be passed during the competition?

Think:

How many times is a baton passed in one race?

2. There are 7 discus teams. Each team has 6 students. Each student gets to throw the discus 3 times. How many times will the discus be thrown during the competition?

Think:

How many students are in the competition?

3. The swimming race is 5 laps. The swimmer must touch both ends of the pool on each lap. How many times will a swimmer touch the side of the pool?

Think:

How many times will a swimmer touch the side in 2 laps?

4. Tom, Andrew, Alex, and Matthew are kicking a soccer ball. Each boy must kick the ball to everyone. How many times will the ball be kicked?

Think:

How many times does each boy kick the ball?

Name _____

Date _____

Zeros in Two-Digit Quotients

You will learn the importance of placing zeros in the quotient.

Find $62 \overline{)3,310}$.

Step 1 Estimate.
Decide where to
place the first digit.

$$\begin{array}{r} 62 \overline{)3,130} \\ 60 \overline{)3,000} \end{array}$$

Step 2 Try the
estimate. Divide.

$$\begin{array}{r} 5 \\ 62 \overline{)3,130} \\ -310 \\ \hline 3 \end{array}$$

Step 3 Bring down
the ones. Estimate.
Divide.

$$\begin{array}{r} 50 \\ 62 \overline{)3,130} \\ -310 \downarrow \\ \hline 30 \quad 30 < 62 \end{array}$$

Step 4 Write a 0 in
the ones place. Write
the remainder.

$$\begin{array}{r} 50 \text{ R}30 \\ 62 \overline{)3,130} \\ -310 \\ \hline 30 \end{array}$$

Divide.

1. $50 \overline{)3,510}$

2. $22 \overline{)889}$

3. $38 \overline{)1,155}$

4. $41 \overline{)3,298}$

5. $2,660 \div 33$

6. $2,179 \div 54$

7. $1,496 \div 37$

8. $3,163 \div 45$

9. $26 \overline{)794}$

10. $63 \overline{)5,057}$

11. $84 \overline{)3,403}$

12. $58 \overline{)2,949}$

13. $788 \div 13$

14. $2,092 \div 23$

15. $4,746 \div 79$

16. $2,459 \div 35$

17. $59 \overline{)4,737}$

18. $63 \overline{)3,172}$

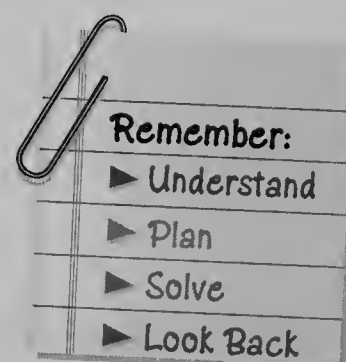
19. $19 \overline{)1,533}$

20. $47 \overline{)4,275}$

Name _____

Date _____

Problem-Solving Application: Use Operations



Decide which operation to use to solve problems.

The fourth grade is holding a book drive. There are 96 fourth graders. Each student brings in 4 books to donate to the school library. The books will be packed in boxes that hold 24 books. How many boxes will they need?

What do you know?

- There are 96 fourth graders
- Each student brings 4 books
- Each box holds 24 books

How can I find the answer?

First multiply to find the total number of books.

$$96 \times 4 = 384 \text{ total books}$$

Then divide the total number of books by the number in each box.

$$384 \div 24 = 16$$

16 boxes will be needed.

Solve. Use the information above to help you.

1. There are 96 fourth graders and 48 first graders. Each fourth grader will read one book to a first grader. How many books will each first grader hear?

Think:

What operation should I do first?

2. The librarian received 38 cartons of donated books. There are 24 books in a carton. She can fit 20 books on a shelf. How many shelves will she need?

Think:

What operations should I use?

3. The students in Mrs. William's class are trying to read 160 books in 4 weeks. There are 20 students in the class. How many books must each student read each week to meet this goal?

Think:

What operation should I do first?

4. There are 386 students in the school. There are 2,176 books in the library. If each student checks out 2 books, how many books are not checked out?

Think:

What operations should I use?

Name _____

Date _____

Place Value and Money

Find the value of the underlined digit.

871

3-Digit Numbers

The 7 is in the tens place and is equal to 70.

1,492

4-Digit Numbers

The 1 is in the thousands place and is equal to 1,000.

Write the underlined number. Then write its place value.

1. 732

2. 834

3. 449

4. 581

5. 682

6. 109

7. 320

8. 502

9. 559

10. 5,920

11. 3,183

12. 6,100

13. 7,298

14. 9,993

15. 1,090

Name _____ Date _____

Place Value and Money

Round to the nearest ten or hundred.

561	3-Digit Numbers	To round to tens, look at the ones place. Is the value equal to or greater than 5? No. Round down to 560.
375	3-Digit Numbers	To round to hundreds, look at the tens place. Is the value equal to or greater than 50? Yes. Round up to 400.

Round to the nearest ten.

1. 574

2. 267

3. 263

4. 346

5. 678

6. 324

7. 786

8. 544

9. 227

Round to the nearest hundred.

10. 465

11. 846

12. 227

13. 337

14. 476

15. 261

Name _____

Date _____

Place Value and Money

Round to the nearest hundred or thousand.

1,675 **4-Digit Numbers**

To round to hundreds, look at the tens place. Is the value equal to or greater than 50? Yes. Round up to 1,700.

3,286 **4-Digit Numbers**

To round to thousands, look at the hundreds place. Is the value equal to or greater than 500? No. Round down to 3,000.

Round to the nearest hundred.

1. 3,786

2. 2,432

3. 6,785

4. 5,467

5. 3,736

6. 1,787

7. 4,632

8. 7,638

9. 5,327

Round to the nearest thousand.

10. 1,246

11. 2,835

12. 3,999

13. 4,583

14. 6,669

15. 7,426

Name _____ Date _____

Place Value and Money

Compare 3- and 4-digit numbers.

Is 135 > or < 153? It is <.

3-Digit Numbers

Look at each place value from left to right and compare carefully to help you determine the answer.

Is 1,592 > or < 1,674? It is <.

4-Digit Numbers

Look at each place value from left to right and compare carefully to help you determine the answer.

Compare. Write > or < for each ○.

1. 245 ○ 463

2. 4,655 ○ 2,455

3. 656 ○ 565

4. 2,366 ○ 2,633

5. 158 ○ 185

6. 1,435 ○ 1,684

7. 987 ○ 436

8. 3,026 ○ 2,306

9. 389 ○ 857

10. 1,007 ○ 1,017

11. 374 ○ 747

12. 9,859 ○ 9,588

13. 529 ○ 526

14. 2,534 ○ 2,034

15. 627 ○ 677

Name _____

Date _____

Place Value and Money

Count the coins.

 <p>7 dimes</p>	 <p>5 nickels</p>	 <p>2 pennies</p>	= \$0.97
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Count the coins below. Write the total amount.



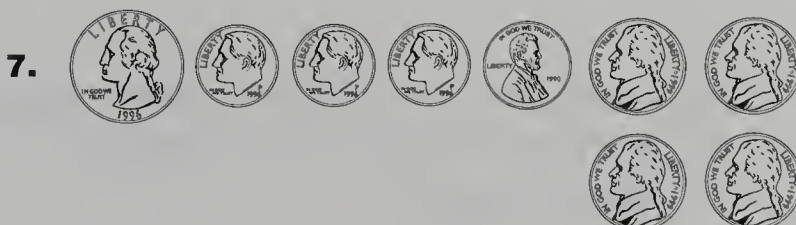














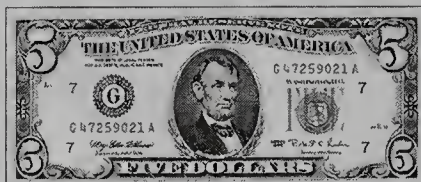
Name _____ Date _____

Place Value and Money

Find the sum of the coins and bills.



1 half-dollar



1 five-dollar bill

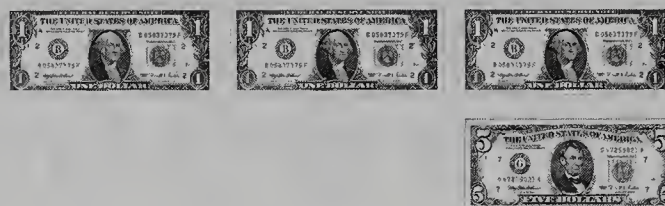
= \$5.50

Count the coins and bills below. Write the total amount.

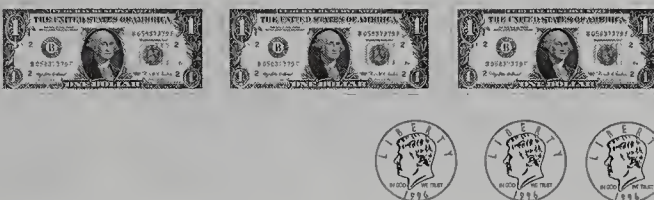
1.



2.



3.



4.



5. You have 1 five-dollar bill. How many more five-dollar bills do you need to make \$10.00?

6. You have 1 five-dollar bill and 3 one-dollar bills. How many more one-dollar bills do you need to make \$10.00?

7. How many one-dollar bills do you need to make \$10.00?

8. You have 4 half-dollars. How many more half-dollars do you need to make \$10.00?

Name _____

Date _____

Addition and Subtraction

Regroup ones.

$$\begin{array}{r} 1 \\ 26 \\ + 37 \\ \hline 63 \end{array}$$

2-Digit Numbers

Look at the ones column. Are there 10 or more when you add the digits together? Yes. You need to regroup and then add the numbers in the tens place.

$$\begin{array}{r} 1 \\ 324 \\ + 169 \\ \hline 593 \end{array}$$

3-Digit Numbers

Look at the ones column. Are there 10 or more when you add the digits together? Yes. You need to regroup and then add the numbers in the tens place.

Add the following numbers. Regroup if necessary.

1.
$$\begin{array}{r} 23 \\ + 48 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 46 \\ + 28 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 39 \\ + 16 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 326 \\ + 265 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 104 \\ + 237 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 256 \\ + 236 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 44 \\ + 37 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 56 \\ + 29 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 27 \\ + 16 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 146 \\ + 238 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 628 \\ + 135 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 407 \\ + 257 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 78 \\ + 17 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 65 \\ + 26 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 16 \\ + 16 \\ \hline \end{array}$$

Name _____

Date _____

Addition and Subtraction

Regroup ones or tens.

$$\begin{array}{r} 1 \\ 126 \\ + 144 \\ \hline 270 \end{array}$$

3-Digit Numbers

Look at the ones place. Do you need to regroup? Yes. Look at the tens place. Do you need to regroup? No. Add. $126 + 144 = 270$.

Where did you regroup? the ones place

Add the following numbers. Then write if you regrouped in the ones place or the tens place.

1.
$$\begin{array}{r} 236 \\ + 254 \\ \hline \end{array}$$

Where did you regroup?

2.
$$\begin{array}{r} 107 \\ + 238 \\ \hline \end{array}$$

Where did you regroup?

3.
$$\begin{array}{r} 129 \\ + 312 \\ \hline \end{array}$$

Where did you regroup?

4.
$$\begin{array}{r} 452 \\ + 275 \\ \hline \end{array}$$

Where did you regroup?

5.
$$\begin{array}{r} 352 \\ + 139 \\ \hline \end{array}$$

Where did you regroup?

6.
$$\begin{array}{r} 138 \\ + 281 \\ \hline \end{array}$$

Where did you regroup?

7.
$$\begin{array}{r} 215 \\ + 579 \\ \hline \end{array}$$

Where did you regroup?

8.
$$\begin{array}{r} 626 \\ + 193 \\ \hline \end{array}$$

Where did you regroup?

9.
$$\begin{array}{r} 829 \\ + 153 \\ \hline \end{array}$$

Where did you regroup?

10.
$$\begin{array}{r} 583 \\ + 396 \\ \hline \end{array}$$

Where did you regroup?

11.
$$\begin{array}{r} 434 \\ + 107 \\ \hline \end{array}$$

Where did you regroup?

12.
$$\begin{array}{r} 266 \\ + 351 \\ \hline \end{array}$$

Where did you regroup?

Name _____

Date _____

Addition and Subtraction

Regroup twice.

$$\begin{array}{r} 11 \\ 397 \\ + 135 \\ \hline 532 \end{array}$$

3-Digit Numbers

Look at the ones place. There are 10 or more ones. Regroup ones. Look at the tens place. There are 10 or more tens. Regroup tens.

Add the following numbers. Regroup ones and tens.

1.
$$\begin{array}{r} 168 \\ + 245 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 472 \\ + 349 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 627 \\ + 193 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 546 \\ + 366 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 375 \\ + 155 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 277 \\ + 133 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 198 \\ + 205 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 565 \\ + 246 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 143 \\ + 678 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 408 \\ + 293 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 316 \\ + 594 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 243 \\ + 288 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 141 \\ + 269 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 425 \\ + 386 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 639 \\ + 193 \\ \hline \end{array}$$

Name _____

Date _____

Addition and Subtraction

Regroup tens.

$$\begin{array}{r} 8\ 13 \\ \cancel{9\ 3} \\ - 64 \\ \hline 29 \end{array}$$

2-Digit Numbers

Regroup and subtract. 9 tens 3 ones becomes 8 tens 13 ones.

$$\begin{array}{r} 7\ 13 \\ \cancel{28\ 3} \\ - 155 \\ \hline 128 \end{array}$$

3-Digit Numbers

Regroup and subtract. 8 tens 3 ones becomes 7 tens 13 ones.

Regroup and subtract the following numbers.

1.
$$\begin{array}{r} 64 \\ - 57 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 282 \\ - 175 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 361 \\ - 142 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 91 \\ - 83 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 130 \\ - 94 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 190 \\ - 111 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 480 \\ - 371 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 93 \\ - 25 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 354 \\ - 136 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 83 \\ - 46 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 462 \\ - 257 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 96 \\ - 29 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 72 \\ - 55 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 160 \\ - 151 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 92 \\ - 77 \\ \hline \end{array}$$

Name _____

Date _____

Addition and Subtraction

Regroup tens or hundreds.

$$\begin{array}{r} 310 \\ 440 \\ - 232 \\ \hline 208 \end{array}$$

3-Digit Numbers

Regroup and subtract. 4 tens becomes 3 tens 10 ones.

$$\begin{array}{r} 410 \\ 509 \\ - 433 \\ \hline 76 \end{array}$$

Regroup and subtract. 5 hundreds becomes 4 hundreds 10 tens.

Regroup and subtract the following numbers. Then write if you regrouped in the tens place or the hundreds place.

1.
$$\begin{array}{r} 203 \\ - 142 \\ \hline \end{array}$$

Where did you regroup?

2.
$$\begin{array}{r} 942 \\ - 124 \\ \hline \end{array}$$

Where did you regroup?

3.
$$\begin{array}{r} 915 \\ - 233 \\ \hline \end{array}$$

Where did you regroup?

4.
$$\begin{array}{r} 243 \\ - 172 \\ \hline \end{array}$$

Where did you regroup?

5.
$$\begin{array}{r} 922 \\ - 315 \\ \hline \end{array}$$

Where did you regroup?

6.
$$\begin{array}{r} 494 \\ - 475 \\ \hline \end{array}$$

Where did you regroup?

7.
$$\begin{array}{r} 482 \\ - 363 \\ \hline \end{array}$$

Where did you regroup?

8.
$$\begin{array}{r} 624 \\ - 541 \\ \hline \end{array}$$

Where did you regroup?

9.
$$\begin{array}{r} 490 \\ - 149 \\ \hline \end{array}$$

Where did you regroup?

10.
$$\begin{array}{r} 756 \\ - 563 \\ \hline \end{array}$$

Where did you regroup?

11.
$$\begin{array}{r} 734 \\ - 474 \\ \hline \end{array}$$

Where did you regroup?

12.
$$\begin{array}{r} 842 \\ - 635 \\ \hline \end{array}$$

Where did you regroup?

Name _____

Date _____

Addition and Subtraction

Regroup twice.

$$\begin{array}{r} 4\ 17 \\ 17 \\ \cancel{5} \cancel{8} \cancel{7} \\ - 398 \\ \hline 189 \end{array}$$

3-Digit Numbers

Regroup and subtract. 8 tens becomes 7 tens 17 ones.

5 hundreds becomes 4 hundreds 17 tens.

Regroup and subtract the following numbers.

1.
$$\begin{array}{r} 923 \\ - 194 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 601 \\ - 205 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 445 \\ - 389 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 845 \\ - 678 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 641 \\ - 475 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 720 \\ - 341 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 256 \\ - 169 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 553 \\ - 476 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 600 \\ - 549 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 324 \\ - 196 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 553 \\ - 358 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 402 \\ - 339 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 706 \\ - 607 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 726 \\ - 629 \\ \hline \end{array}$$

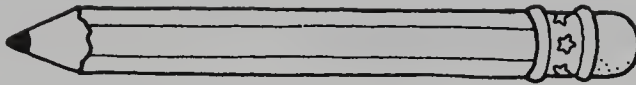
15.
$$\begin{array}{r} 880 \\ - 499 \\ \hline \end{array}$$

Name _____

Date _____

Measurement: Customary and Metric

Measure to the nearest inch.




Measure the length of the pencil with your ruler.
Which inch mark is it closest to? 3 inches

Measure the objects below to the nearest inch.


1.  _____ inches


2.  _____ inches

3.  _____ inches

4.  _____ inches

5.  _____ inches

6.  _____ inches

7.  _____ inches

Name _____

Date _____

Measurement: Customary and Metric


Measure to the nearest half inch.

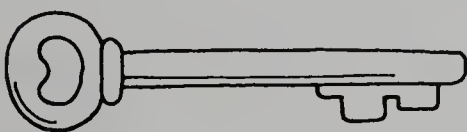


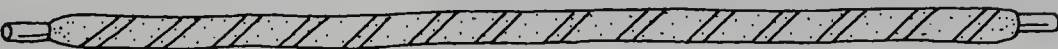
Measure the length of the bracelet with your ruler. Which half-inch mark is it closest to? $2\frac{1}{2}$ inches


Measure the objects below to the nearest half inch.

1.  _____ inches

2.  _____ inches

3.  _____ inches

4.  _____ inches

5.  _____ inches

6.  _____ inches

7.  _____ inches

Name _____ Date _____

Measurement: Customary and Metric


Measure to the nearest centimeter.




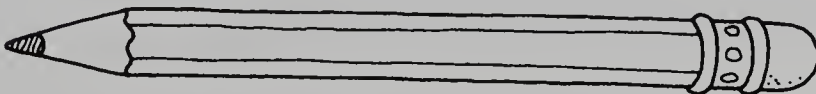
Use your centimeter ruler to measure the bracelet.
Which centimeter mark is it closest to? 6 centimeters


Measure the objects below to the nearest centimeter.

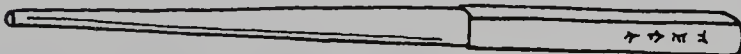
1.  _____ centimeters

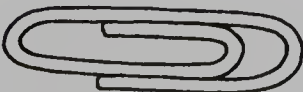
2.  _____ centimeters

3.  _____ centimeters

4.  _____ centimeters

5.  _____ centimeters

6.  _____ centimeters

7.  _____ centimeters

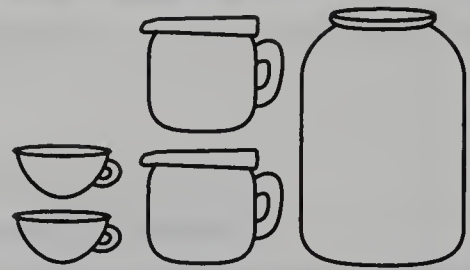
Name _____ Date _____

Measurement: Customary and Metric

Convert cups, pints, and quarts.

2 cups = 1 pint
2 pints = 1 quart

Helen has a two-quart container.
How many cups of water will it
take to fill the container? 8 cups



Write your answers to the following questions.

1. How many cups are in 1 quart? _____
2. How many pints are in 3 quarts? _____
3. How many cups are in 7 pints? _____
4. 12 cups are equal to how many quarts? _____
5. 16 cups are equal to how many pints? _____
6. My thermos holds 2 quarts. How many pints does it hold? _____
7. I drank 8 cups of water today. How many pints did I drink? _____
8. It took 4 quarts of water to water the tree. How many pints did it take? _____
9. May bought 4 pints of milk today. How many quarts did she buy? _____
10. 40 cups = _____ quarts
11. 12 quarts = _____ pints
12. 16 pints = _____ cups
13. 80 cups = _____ quarts
14. 16 cups = _____ pints
15. 48 pints = _____ quarts

Name _____

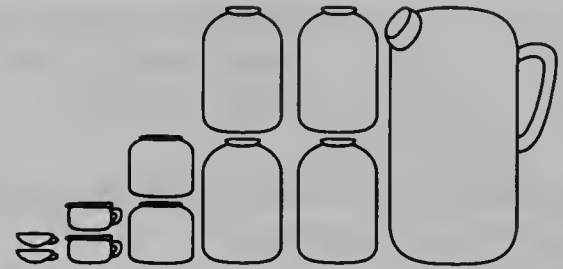
Date _____

Measurement: Customary and Metric

Convert gallons.

If I fill my car with 10 gallons of gas, how many quarts have I used?

40 quarts



Write your answers to the following questions.

1. 4 gallons are equal to how many half-gallons? _____
2. 4 gallons are equal to how many pints? _____
3. 6 gallons are equal to how many quarts? _____
4. 12 gallons are equal to how many cups? _____
5. 20 quarts are equal to how many gallons? _____
6. It took 3 gallons of gas to drive to work.
How many quarts did it take? _____
7. I need 8 quarts of lemonade to bring to the
baseball game. How many gallons do I need? _____
8. The dogs drank 3 gallons of water today.
How many half-gallons did they drink? _____
9. My father bought 8 pints of milk at the store.
How many gallons did he buy? _____
10. Shaun used 32 cups of milk to make a recipe.
How many gallons did he use? _____
11. Ron drank 1 quart of water during his workout.
How many cups did he drink? _____
12. My uncle's power boat holds 25 gallons of gas.
How many half-gallons does it hold? _____

Name _____

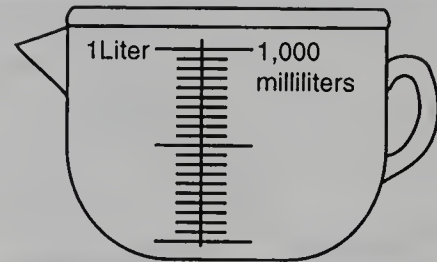
Date _____

Measurement: Customary and Metric

Convert liters and milliliters.

If 1 liter equals 1,000 milliliters, how many milliliters do 2 liters equal?
2,000 milliliters

Use what you know about place value to help you convert liters to milliliters.



Write the missing numbers.

1. 5,000 milliliters = _____ liters
2. 8,000 milliliters = _____ liters
3. 3,000 milliliters = _____ liters
4. 9,000 milliliters = _____ liters
5. 7,000 milliliters = _____ liters
6. 6 liters = _____ milliliters
7. 4 liters = _____ milliliters
8. 2 liters = _____ milliliters
9. 3 liters = _____ milliliters
10. 5 liters = _____ milliliters
11. 3 liters + 5 liters = _____ milliliters
12. 2 liters + 6 liters = _____ milliliters
13. 4 liters + 5 liters = _____ milliliters
14. 1 liters + 6 liters = _____ milliliters
15. 6 liters + 3 liters = _____ milliliters

Name _____

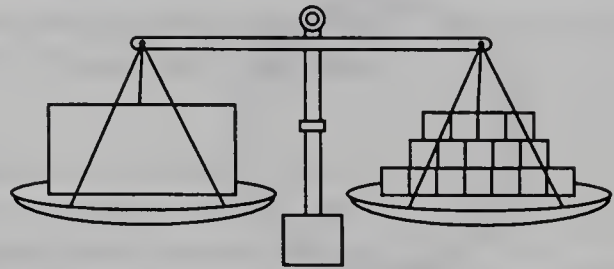
Date _____

Measurement: Customary and Metric

Convert ounces and pounds.

**Balance the scale: I have
1 pound on my scale. How
many ounces do I need to
balance it?**

16 ounces



Write your answers to the following questions.

1. I have $3\frac{1}{2}$ pounds on my scale. How many ounces do I need to balance it? _____
2. I have 24 ounces on my scale. How many pounds do I need to balance it? _____
3. I have 3 pounds on my scale. How many ounces do I need to balance it? _____
4. I have 32 ounces on my scale. How many pounds do I need to balance it? _____
5. I have 5 pounds on my scale. How many ounces do I need to balance it? _____
6. I want to make an apple pie. I need 2 pounds of apples for the recipe. How many ounces of apples should I buy? _____
7. Jenny's cat weighs 10 pounds. How many ounces does the cat weigh? _____
8. Bob wanted some cheese to make a sandwich. He bought half a pound. How many ounces did he buy? _____
9. My backpack weighs 6 pounds today! How many ounces does it weigh? _____
10. I bought 1 pound of fabric yesterday. How many ounces did I buy? _____

Name _____ Date _____

Measurement: Customary and Metric

Convert grams and kilograms.

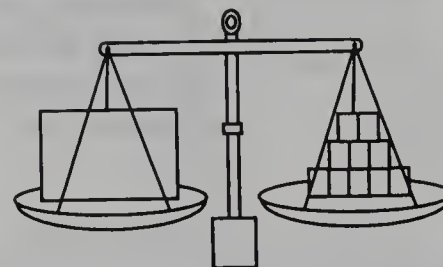
If I have 2,000 grams, how many kilograms do I have? 2 kilograms

Is 4 kilograms $>$ or $<$ 3,000 grams?

First convert kilograms to grams.

4 kilograms = 4,000 grams.

Then solve. 4 kilograms $>$ 3,000 grams



Write the missing numbers.

1. 5 kilograms = _____ grams
2. 6,000 grams = _____ kilograms
3. 9 kilograms = _____ grams
4. 4,000 grams = _____ kilograms
5. 2 kilograms = _____ grams

Write $>$ or $<$.

6. Is 5,000 grams $>$ or $<$ 8 kilograms? _____
7. Is 6 kilograms $>$ or $<$ 2,000 grams? _____
8. Is 9,000 grams $>$ or $<$ 6 kilograms? _____
9. Is 2 kilograms $>$ or $<$ 1,000 grams? _____
10. Is 5,000 grams $>$ or $<$ 8 kilograms? _____
11. Is 4,000 grams $>$ or $<$ 5 kilograms? _____
12. Is 2,000 grams $>$ or $<$ 9 kilograms? _____
13. Is 10 kilograms $>$ or $<$ 9,000 grams? _____
14. Is 4 kilograms $>$ or $<$ 1,000 grams? _____
15. Is 7,000 grams $>$ or $<$ 6 kilograms? _____

Name _____

Date _____

Measurement: Customary and Metric

Read analog and digital clocks and write time after the hour for 5-minute intervals.

Where will the minute hand be when it is a quarter past ten, or ten fifteen? on the three

Complete the clock by drawing the minute hand.

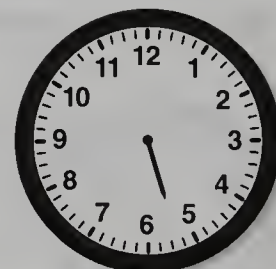


Draw the minute hand on the clocks to reflect the correct time.

1. It's five past two.
Complete the clock.



2. It's twenty past five.
Complete the clock.



3. It's ten past one.
Complete the clock.



4. It's two forty-five.
Complete the clock.



Write in the minutes on the clocks to reflect the correct time.

5. It's a quarter past three. Complete the clock.



6. It's twenty past four. Complete the clock.



7. It's half past six. Complete the clock



8. It's nine thirty-five. Complete the clock.



Name _____ Date _____

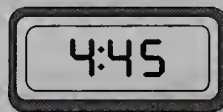
Measurement: Customary and Metric

Read analog and digital clocks and write time before the hour for 5-minute intervals.

It is how many minutes before
six o'clock? twenty-five minutes before
six o'clock, or twenty-five to six



It is how many minutes before
five o'clock? fifteen minutes before
five o'clock, or a quarter to five



Write the correct time.

1. What time is it?



2. What time is it?



3. What time is it?



4. What time is it?



Write *true* or *false*.

5. It's ten to eleven.



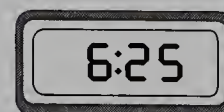
6. It's a quarter to four.



7. It's twenty to two.



8. It's a quarter to seven.



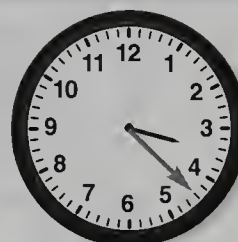
Name _____

Date _____

Measurement: Customary and Metric

Read analog and digital clocks and write time to the minute.

It is three twenty-eight. Draw the missing hand. The minute hand should be on the tick mark indicating the twenty-second minute.



Write the digital time for seven twenty-two.



Complete each clock.

1. It's four thirty-three.
Draw the missing hand.



2. It's six twelve.
Draw the missing hand.



3. It's seven forty-seven.
Draw the missing hand.



4. It's three fifty-six.
Draw the missing hand.



5. Write the digital time for six minutes to nine.



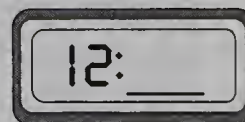
6. Write the digital time for eight past five.



7. Write the digital time for half past three.



8. Write the digital time for twenty-six past twelve.



Name _____ Date _____

Measurement: Customary and Metric

Determine elapsed time in 5-minute intervals.

6:05

6:20

How much time has passed? **15 minutes**

Count the number of minutes between the two times shown.

Write in the correct answers.

1.

4:15

4:20

How much time has passed?

2.

1:20

1:50

How much time has passed?

3.

8:15

8:25

How much time has passed?

4.

3:45

3:50

How much time has passed?

5.

7:15

7:30

How much time has passed?

6.

2:10

2:35

How much time has passed?

7.

4:25

4:55

How much time has passed?

8.

5:40

5:50

How much time has passed?

Name _____

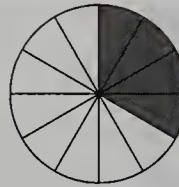
Date _____

Fractions and Mixed Numbers

Write a fraction for part of a region.

Write the fraction
to match the picture.

$$\frac{4}{12}$$



Write the fraction
to match the picture.

$$\frac{3}{8}$$



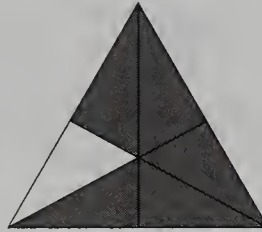
Remember that the total number of parts is the denominator.

Write the fraction.

1.



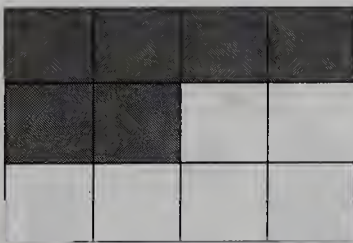
2.



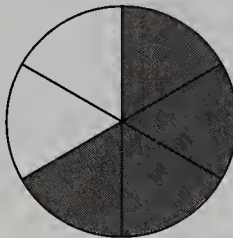
3.



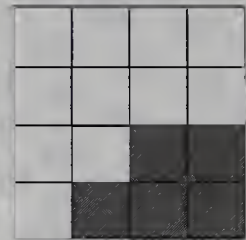
4.



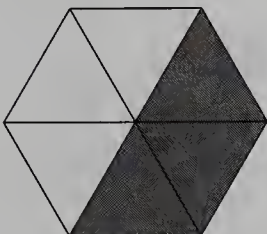
5.



6.



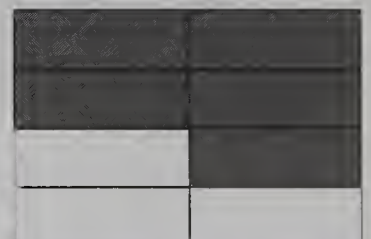
7.



8.



9.



Name _____

Date _____

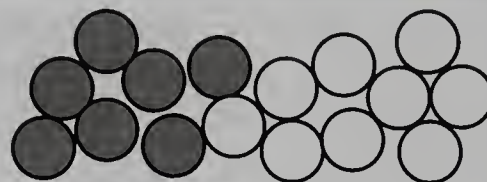
Fractions and Mixed Numbers

Write a fraction for part of a group.

Write the fraction
to match the picture.

$$\frac{7}{16}$$

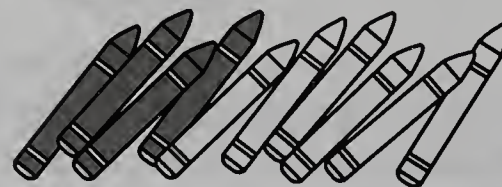
Remember that the total number of balls is the denominator and the number of shaded balls is the numerator.



Write the fraction
to match the picture.

$$\frac{4}{10}$$

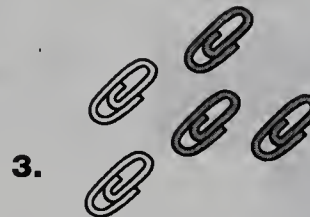
Remember that each crayon is equal to $\frac{1}{10}$.

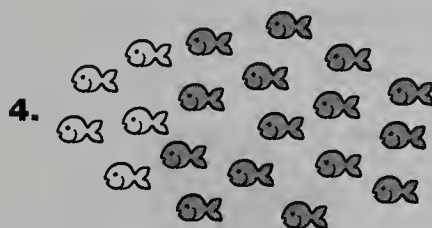


Write the fraction.





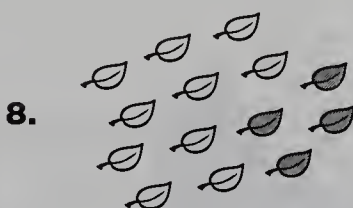














Name _____

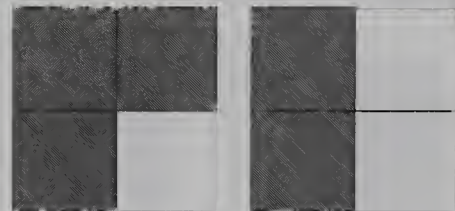
Date _____

Fractions and Mixed Numbers

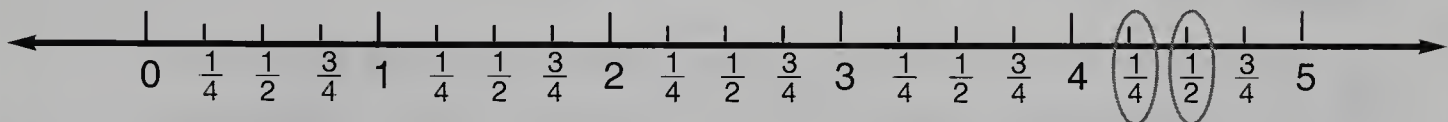
Compare unit fractions.

Which fraction is larger, $\frac{3}{4}$ or $\frac{2}{4}$? $\frac{3}{4}$

How do you know? The denominators are the same but the numerator is larger.



You can compare fractions with the same denominator by looking at the numerators.



Place a circle around the mark indicating $4\frac{1}{4}$. Do the same for the mark indicating $4\frac{1}{2}$. Which is greater? $4\frac{1}{2}$

How do you know? It's farther along the number line.

Number lines can help us compare fractions.

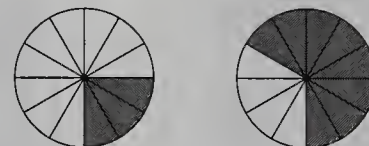
Compare the fractions.

1.



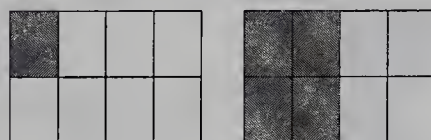
Which is larger, $\frac{2}{6}$ or $\frac{4}{6}$? _____

2.



Which is smaller, $\frac{3}{12}$ or $\frac{8}{12}$? _____

3.



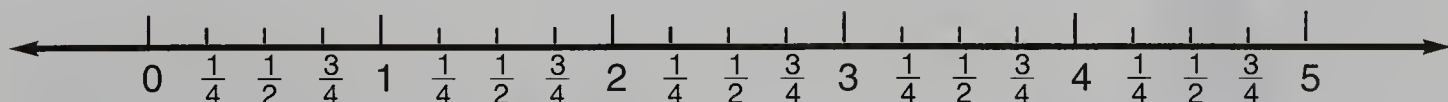
Which is larger, $\frac{1}{8}$ or $\frac{4}{8}$? _____

4.



Which is smaller, $\frac{2}{3}$ or $\frac{3}{3}$? _____

5.



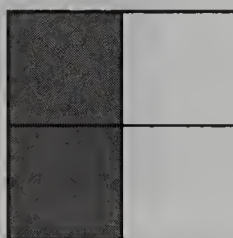
Circle these numbers on the number line: $3\frac{1}{2}$ and $3\frac{3}{4}$. Which is smaller? _____

Name _____ Date _____

Fractions and Mixed Numbers

Identify equivalent fractions.

$\frac{2}{4}$ are shaded.



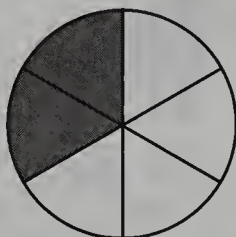
$\frac{1}{2}$ is shaded.



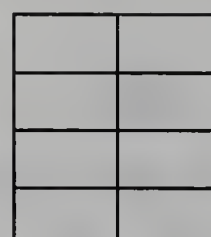
Each large square is divided into parts. One is divided into 4 parts, and one is divided into 2 parts. The same amount is shaded in both squares.
 $\frac{2}{4}$ and $\frac{1}{2}$ are equal fractions.

Color in the same amount of the second object to match the first object.

1.



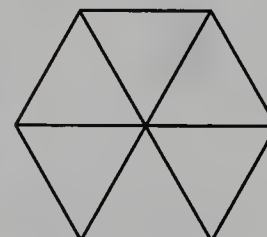
2.



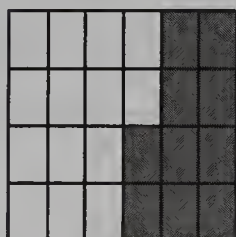
3.



4.



5.



Name _____

Date _____

Decimals

Write a decimal for a fraction with a denominator of 10 or 100.

What fraction is shown? $\frac{5}{10}$

What is the decimal equivalent? 0.5

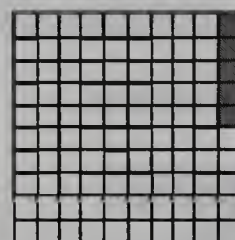
Look at the model. It represents tenths. The tenths place is to the right of the decimal. Tenths are smaller than whole numbers.



What fraction is shown? $\frac{5}{100}$

What is the decimal equivalent? 0.05

Look at the model. It represents hundredths. The second place to the right of the decimal shows hundredths. Hundredths are smaller than tenths. Notice that 1 tenth is equal to 10 hundredths.

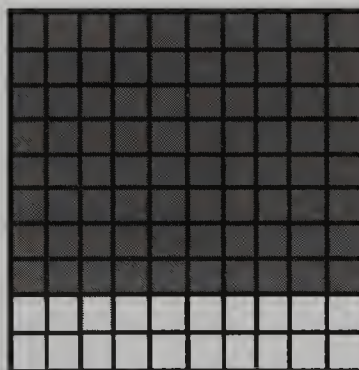


Write the fraction and the decimal equivalent.

1.



2.



3.



Write the decimal equivalent.

4. $\frac{9}{100}$

5. $\frac{6}{10}$

6. $\frac{10}{100}$

7. $\frac{2}{10}$

8. $\frac{70}{100}$

9. $\frac{4}{10}$

Name _____

Date _____

Decimals

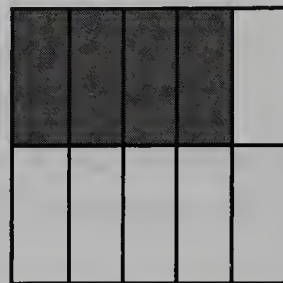
Write tenths for a model.

How many tenths are shaded? 4 tenths

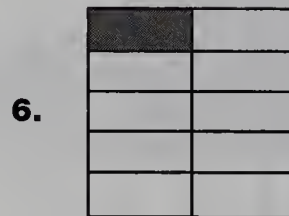
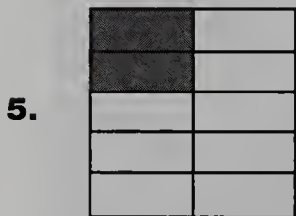
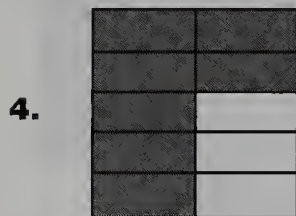
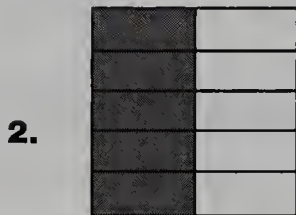
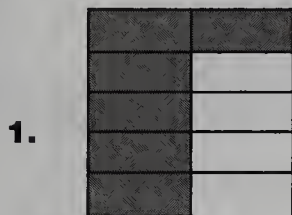
Write the fraction. $\frac{4}{10}$

Write the equivalent decimal. 0.4

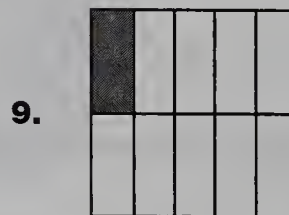
Look at the denominator of the fraction. It will determine the place value of the numerator when the fraction is written as a decimal equivalent.



Write the decimal.



Write the fraction.



Name _____

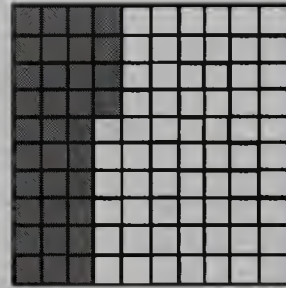
Date _____

Decimals

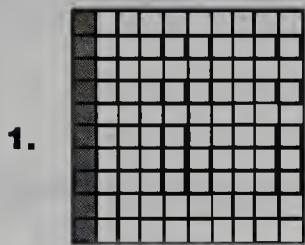
Write hundredths for a model.

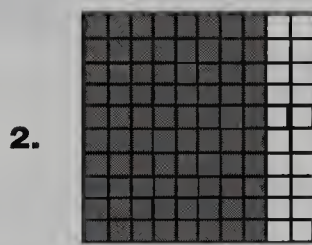
Write the fraction. $\frac{34}{100}$
Write the equivalent decimal. 0.34

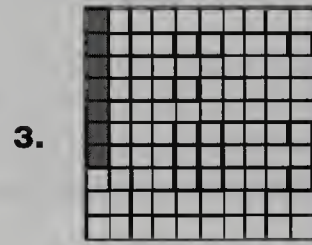
Look at the illustration. The square is divided into hundredths. Hundredths can be represented in fraction or decimal form.

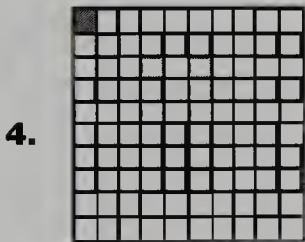


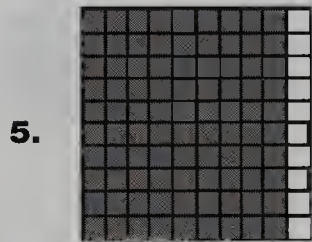
Write the decimal.

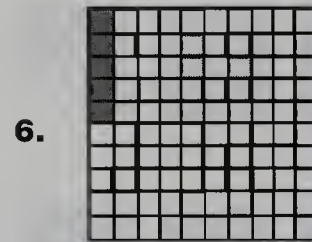




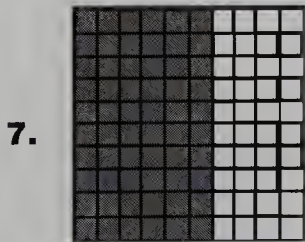


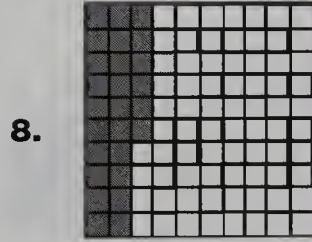


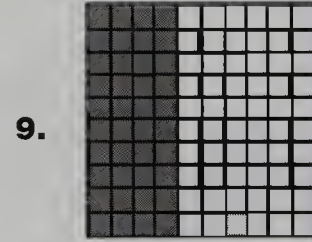




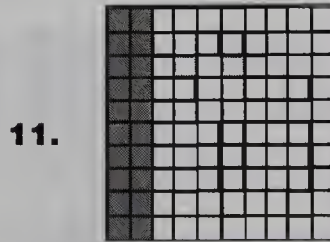
Write the fraction.

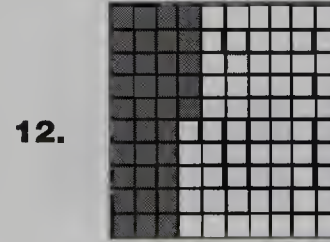












Name _____

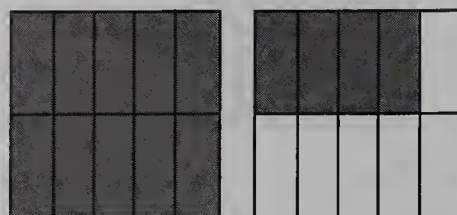
Date _____

Decimals

Write mixed decimals for models.

There is one whole and another that is not complete. What is the fraction? $1\frac{4}{10}$
What is the decimal equivalent? 1.4

Whole numbers go in the ones place before the decimal.
Tenths go in the tenths place after the decimal.

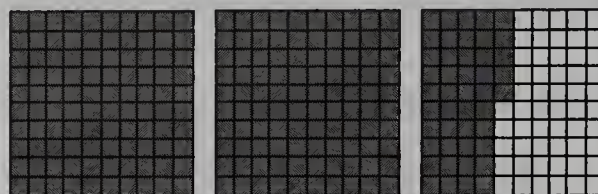


There are two whole squares and another that is not complete.

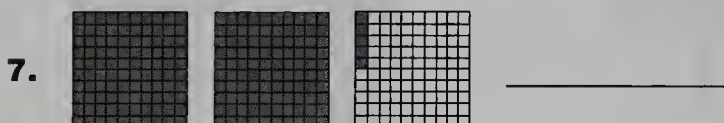
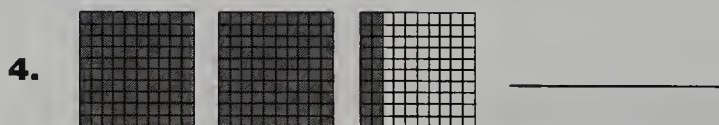
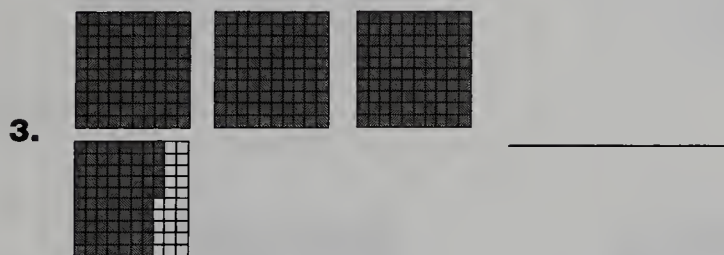
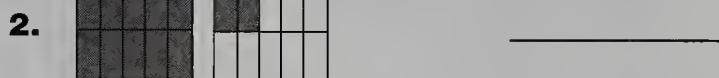
What is the fraction? $2\frac{45}{100}$

What is the decimal equivalent? 2.45

Whole numbers go in the ones place before the decimal.
Tenths go in the tenths place after the decimal. Hundredths go in the hundredths place after the decimal.



Write the decimal.



Name _____

Date _____

Statistics and Probability

Make a tally for some data.

In the chess tournament, Matt won 6 games,
Nina won 4 games, and Sara won 8 games.
Tally the total number of games won.

||||| ||||| ||||| ||||

Tally marks can help you solve problems.

My necklace has 4 purple beads, 7 blue beads,
and 1 heart-shaped bead. Tally the number of beads.

||||| ||||| ||

You can use tally marks to add.

Use tally marks and then write the number.

1. Maggie has 4 apples, 6 oranges, and 8 bananas.
Tally all the fruit.

2. Dylan brought fruit to school. He brought 12 pears
and 12 plums. Tally all the fruit.

3. Michelle brought her drum set to school. She had
1 base drum, 1 snare drum, and 3 tom-tom drums.
Tally all the drums.

4. There are 2 pencils, 8 rulers, 1 notebook, and 6 erasers
on the desk. Tally all the things on the desk.

5. At the library, Cody took out 10 books. Eva took out
7 books, and Vicky took out 6 books.
Tally the number of books.

6. There are 10 tubes of paint, 20 paintbrushes, and 6 sticks
of charcoal in my art box. Tally all the art supplies.

7. Emma has 4 angelfish, 6 goldfish, and 1 catfish in
her aquarium. Tally the number of fish.

8. There were 10 tennis balls, 14 basketballs, and 18
baseballs in the bag. Tally the number of balls.

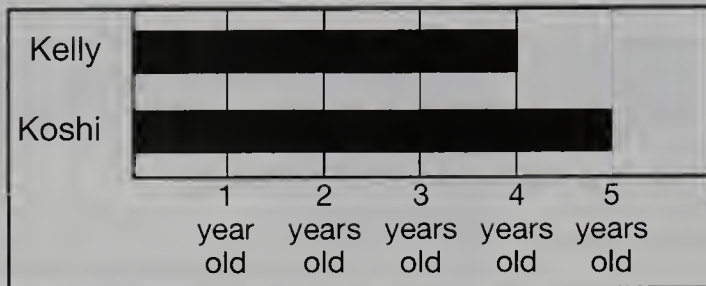
9. There were 7 fireflies, 3 flies, and 4 ants in the jar.
Tally the number of insects.

Name _____ Date _____

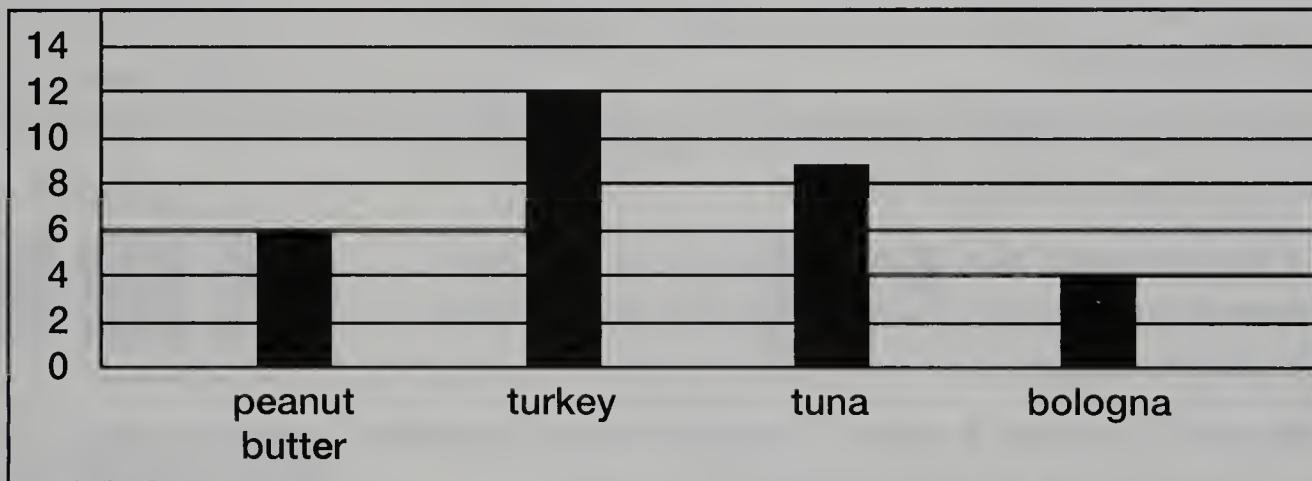
Statistics and Probability

Read and answer questions about a bar graph.

The bar graph shows that Kelly is 4 years old and Koshi is 5 years old.



The graph below shows the kinds of sandwiches served for lunch and how many people ate each kind. Use the data in this graph to answer the questions.



1. How many people ate peanut butter sandwiches? _____
2. How many more people ate tuna than bologna? _____
3. How many more people would need to eat peanut butter to equal the number of people who ate turkey? _____
4. Which kind of sandwich was eaten the most? _____
5. Which kind of sandwich was eaten the least? _____

Name _____

Date _____

Statistics and Probability

Determine the likelihood of an event.

Which section is the arrow more likely to land on?

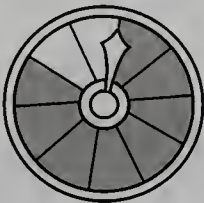
The shaded area.

You are more likely to land on the shaded area because the spinner has more shaded areas than unshaded ones.



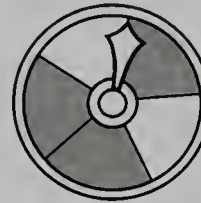
Write the correct answer.

1.



Is the arrow more likely to land on the shaded or unshaded area?

2.



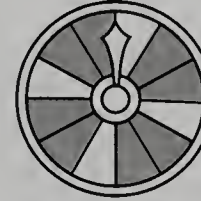
Is the arrow more likely to land on the shaded or unshaded area?

3.



Is the arrow more likely to land on the shaded or unshaded area?

4.



Is the arrow more likely to land on the shaded or unshaded area?

5.



Is the arrow more likely to land on the shaded or unshaded area?

Name _____

Date _____

Geometry and Measurement

Identify plane figures.

Which shape is not found in this picture?

- A. square
- B. triangle
- C. circle
- D. rectangle

a circle



Circle the correct answer.

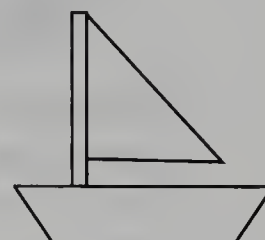
1. Which shape is not found in this picture?

- A. circle
- B. rectangle
- C. square
- D. triangle



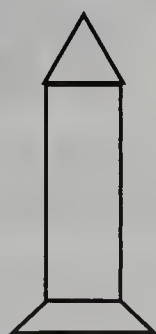
2. Which shape is not found in this picture?

- A. triangle
- B. circle
- C. trapezoid
- D. rectangle



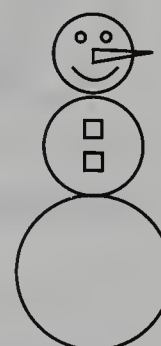
3. Which shape is not found in this picture?

- A. triangle
- B. square
- C. trapezoid
- D. rectangle



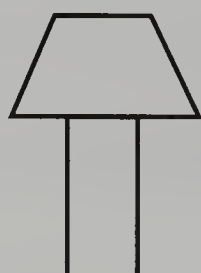
4. Which shape is not found in this picture?

- A. hexagon
- B. circle
- C. square
- D. triangle



5. Which shape is not found in this picture?

- A. trapezoid
- B. rectangle
- C. square
- D. quadrilateral



Name _____

Date _____

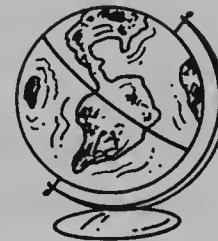
Geometry and Measurement

Identify plane figures.

Which shape does this picture most resemble?

- A. cone
- B. sphere
- C. rectangular prism
- D. cylinder

a sphere



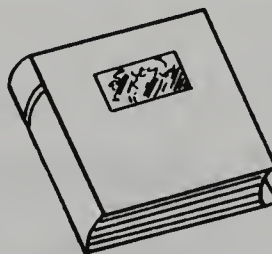
Which shapes do the objects below most resemble?

1.



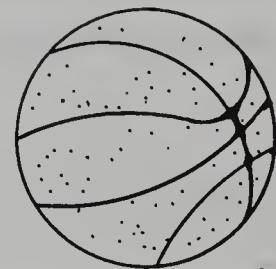
- A. cone
- B. pyramid
- C. sphere
- D. rectangular prism

2.



- A. pyramid
- B. sphere
- C. cone
- D. rectangular prism

3.



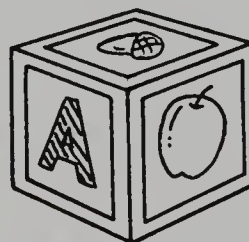
- A. sphere
- B. cone
- C. cylinder
- D. pyramid

4.



- A. sphere
- B. cylinder
- C. cone
- D. cube

5.



- A. cone
- B. cylinder
- C. cube
- D. rectangular prism

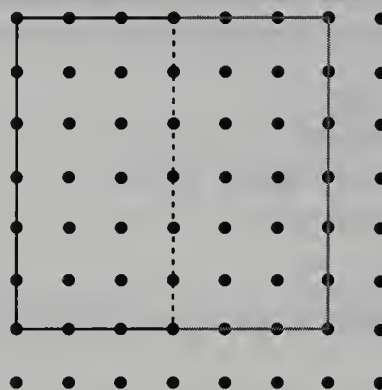
Name _____

Date _____

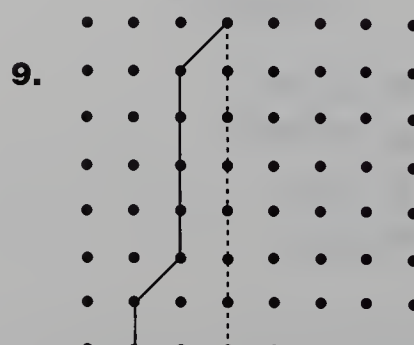
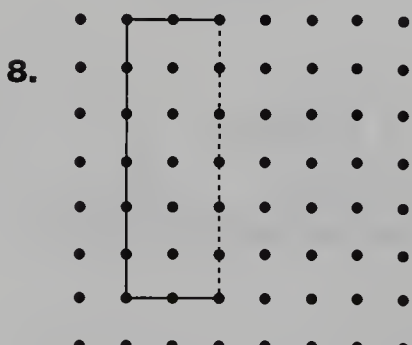
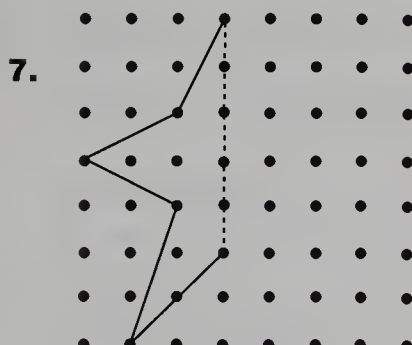
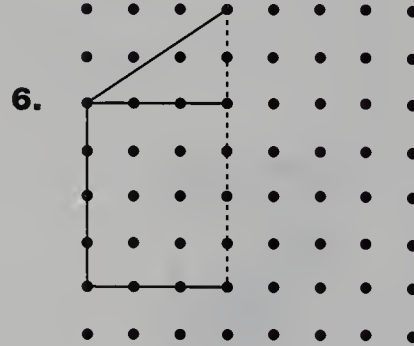
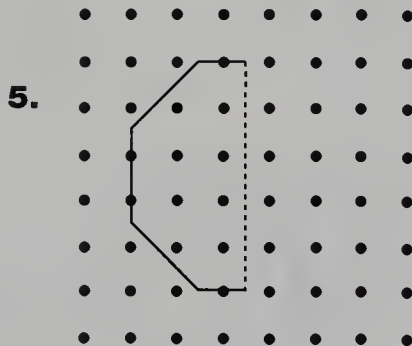
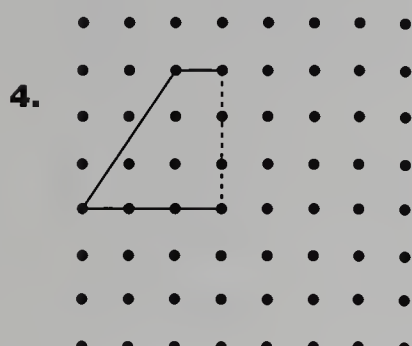
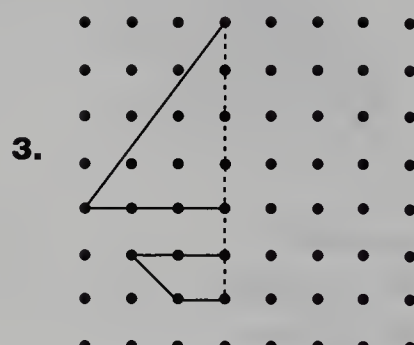
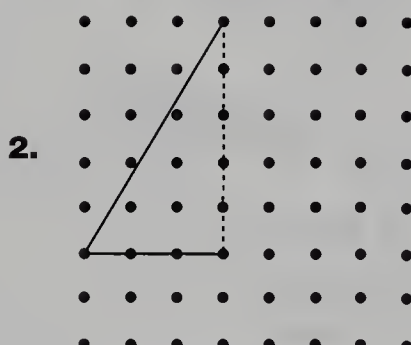
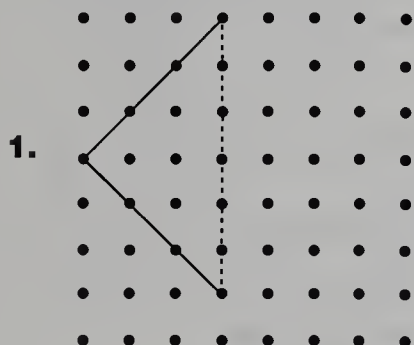
Geometry and Measurement

Draw a matching part.

Draw the matching part.
Notice the line of symmetry.



Draw the matching part.



Name _____

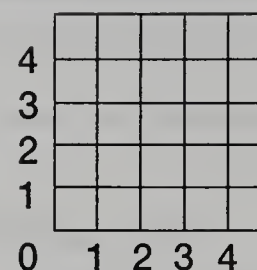
Date _____

Geometry and Measurement

Find coordinates on graphs.

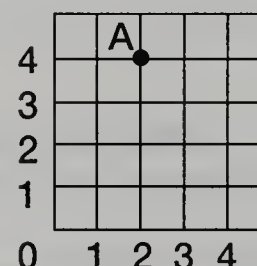
Begin at zero. Move 2 units to the right then move 2 units up.
Give the coordinates. (2, 2)

The numbers in an ordered pair are called coordinates.



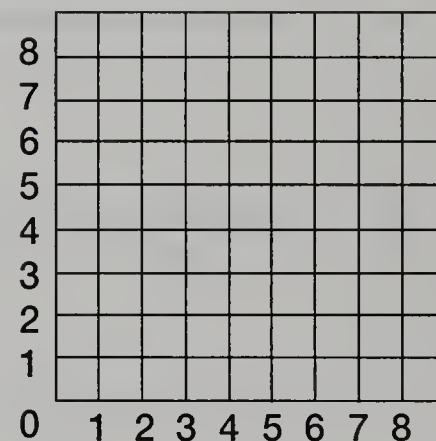
Find the coordinates for A. (2, 4)

An ordered pair is a set of coordinates.



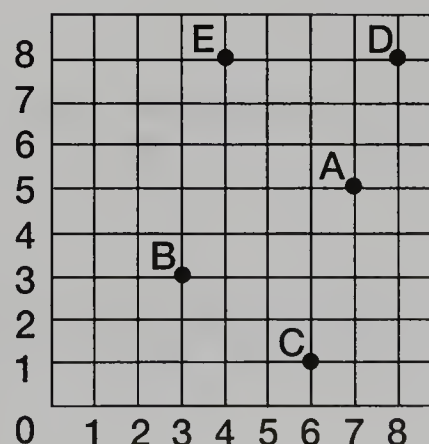
Use the grid at the right to solve the following.

1. Begin at zero. Move right 2 units and up 3 units. Give the coordinates. _____
2. Begin at zero. Move right 8 units, up 6 units, and left 3 units. Give the coordinates. _____
3. Begin at zero. Move up 4 units, right 5 units, and down 1 unit. Give the coordinates. _____



Use the grid to find the coordinates.

4. Locate A _____
- Locate B _____
- Locate C _____
- Locate D _____
- Locate E _____



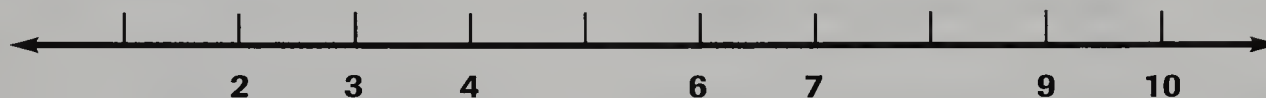
Name _____

Date _____

Geometry and Measurement

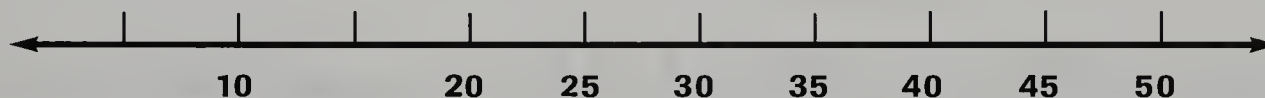
Identify whole numbers on a line.

This number line represents whole numbers from 1 to 10.



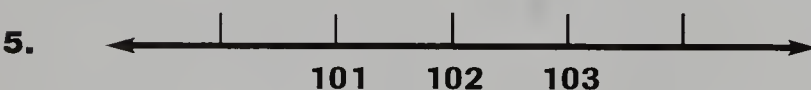
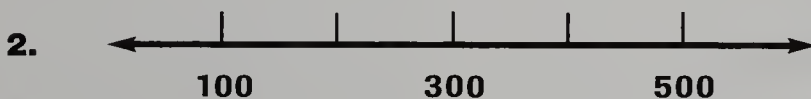
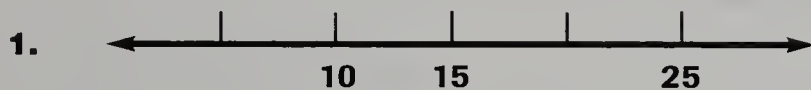
Fill in the missing numbers. 1, 5, 8

This number line uses patterns.



Fill in the missing numbers. 5, 15

Fill in the missing numbers.



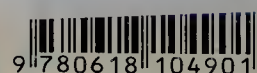
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